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363441- HEALTH PSYCHOLOGY

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SYLLABI – BOOK MAPPING TABLE
363441- HEALTH PSYCHOLOGY

CONTENTS

BLOCK I CHALLENGES

UNIT –I INTRODUCTION TO HEALTH PSYCHOLOGY

Structure

1.1 INTRODUCTION

Health psychology is the study of psychological and behavioral processes in health, illness, and healthcare. It is concerned with understanding how psychological, behavioral, and cultural factors contribute to physical health and illness. Psychological factors can affect health directly. For example, chronically occurring environmental stressors affecting the hypothalamic–pituitary–adrenal axis, cumulatively, can harm health. Behavioral factors can also affect a person's health. For example, certain behaviors can, over time, harm (smoking or consuming excessive amounts of alcohol) or enhance health (engaging in exercise). Health psychologists take abiopsychosocial approach. In other words, health psychologists understand health to be the product not only of biological processes (e.g., a virus, tumor, etc.) but also of psychological (e.g., thoughts and beliefs), behavioral (e.g., habits), and social processes (e.g.,socioeconomic status and ethnicity).

By understanding psychological factors that influence health, and constructively applying that knowledge, health psychologists can improve

health by working directly with individual patients or indirectly in large-scale public health programs. In addition, health psychologists can help train other healthcare professionals (e.g., physicians and nurses) to take advantage of the knowledge the discipline has generated, when treating patients. Health psychologists work in a variety of settings: alongside other medical professionals in hospitals and clinics, in public health departments working on large-scale behavior change and health promotion programs, and in universities and medical schools where they teach and conduct research.

Although its early beginnings can be traced to the field of clinical psychology, four different divisions within health psychology and one related field, occupational health psychology (OHP), have developed over time. The four divisions include clinical health psychology, public health psychology, community health psychology, and critical health psychology. Professional organizations for the field of health psychology include Division 38 of the American Psychological Association (APA), the Division of Health Psychology of the British Psychological Society (BPS), the European Health Psychology Society, and the College of Health Psychologists of the Australian Psychological Society (APS). Advanced credentialing in the US as a clinical health psychologist is provided through the American Board of Professional Psychology.

Definition

Health psychology is to educate, inform, and enable patients to mitigate physical health problems. It is a non-traditional approach to health through understanding how the mind and body work together. It can help patients manage chronic conditions or find ways to prevent disease

1.2 TYPES OF HEALTH PSYCHOLOGY

Clinical health psychology (ClHP)

ClHP is the application of scientific knowledge, derived from the field of health psychology, to clinical questions that may arise across the spectrum of health care. ClHP is one of many specialty practice areas for clinical psychologists. It is also a major contributor to the prevention-focused field of behavioral health and the treatment-oriented field ofbehavioral medicine. Clinical practice includes education, the techniques of behavior change, and psychotherapy. In some countries, a clinical health psychologist, with additional training, can become a medical psychologist and, thereby, obtain prescription privileges.

Public health psychology (PHP)

PHP is population oriented. A major aim of PHP is to investigate potential causal links between psychosocial factors and health at the population level. Public health psychologists present research results to educators, policy makers, and health care providers in order to promote better public health. PHP is allied to other public health disciplines including epidemiology, nutrition, genetics and biostatistics. Some PHP

interventions are targeted toward at-risk population groups (e.g., undereducated, single pregnant women who smoke) and not the population as a whole (e.g., all pregnant women).

Community health psychology (CoHP)

CoHP investigates community factors that contribute to the health and well-being of individuals who live in communities. CoHP also develops community-level interventions that are designed to combat disease and promote physical and mental health. The community often serves as the level of analysis, and is frequently sought as a partner in health-related interventions.

Critical health psychology (CrHP)

CrHP is concerned with the distribution of power and the impact of power differentials on health experience and behavior, health care systems, and health policy. CrHP prioritizes social justice and the universal right to health for people of all races, genders, ages, and socioeconomic positions. A major concern is health inequalities. The critical health psychologist is an agent of change, not simply an analyst or cataloger. A leading organization in this area is the International Society of Critical Health Psychology.

A number of relevant trends coincided with the emergence of health psychology, including:

- Epidemiological evidence linking behavior and health.
- The addition of behavioral science to medical school curricula, with courses often taught by psychologists.
- The training of health professionals in communication skills, with the aim of improving patient satisfaction and adherence to medical treatment.
    - Increasing numbers of interventions based on psychological theory (e.g., behavior modification).
    - An increased understanding of the interaction between psychological and physiological factors leading to the emergence of psychophysiology and psychoneuroimmunology(PNI).
    - The health domain having become a target of research by social psychologists interested in testing theoretical models linking beliefs, attitudes, and behavior.
    - The emergence of AIDS/HIV, and the increase in funding for behavioral research the epidemic provoked.

The emergence of academic /professional bodies to promote research and practice in health psychology was followed by the publication of a series of textbooks which began to lay out the interests of the discipline.

1.3 HEALTH PSYCHOLOGIST ROLES

Below are some examples of the types of positions held by health psychologists within applied settings such as the UK's NHS and private practice.

- **Consultant health psychologist**: A consultant health psychologist will take a lead for health psychology within public health, including managing tobacco control and smoking cessation services and providing professional leadership in the management of health trainers.
- **Principal health psychologist**: A principal health psychologist could, for example lead the health psychology service within one of the UK's leading heart and lung hospitals, providing a clinical service to patients and advising all members of the multidisciplinary team.
- **Health psychologist**: An example of a health psychologist's role would be to provide health psychology input to a center for weight management. Psychological assessment of treatment, development and delivery of a tailored weight management program, and advising on approaches to improve adherence to health advice and medical treatment.
- **Research psychologist**: Research health psychologists carry out health psychology research, for example, exploring the psychological impact of receiving a diagnosis of dementia, or evaluating ways of providing psychological support for people with burn injuries. Research can also be in the area of health promotion, for example investigating the determinants of healthy eating or physical activity or understanding why people misuse substances.
- **Health psychologist in training/assistant health psychologist**: As an assistant/in training, a health psychologist will gain experience assessing patients, delivering psychological interventions to change health behaviors, and conducting research, whilst being supervised by a qualified health psychologist.

1.4 NEED AND SIGNIFICANCE

- Rick recently hurt his back at work. He's in a lot of pain, but doesn't want to become dependent on painkillers, so he's looking for other ways to manage his pain. He is seeing a psychologist who is teaching him relaxation techniques. This helps Rick avoid becoming stressed. This is a good thing, because when Rick is stressed, he tenses up and the pain becomes worse.
- Like Rick, all of us will have to deal with an injury or illness at some point in our lives. The person we would traditionally see in this situation is a medical doctor who would diagnose us, prescribe medication, and treat our symptoms. However, other help is available to you. Some physical problems can actually be caused, or made worse, by certain emotional, mental, or social conditions.
- **Health psychology** is a specialty area of psychology that focuses on how all facets of our lives impact our physical health. Psychologists in

this field don't treat the disease itself, but try to find ways to help the person who is suffering improve his or her life by better understanding how the mind and body work together.

Purpose

- As we saw in our example of Rick, health psychologists provide a non-traditional approach to understanding our health. One purpose of this field is to inform and educate people, helping them understand that they can take control of their overall well-being. When patients understand how and why their bodies are responding to physical problems, they are better able to accept solutions. Health psychologists can help patients like Rick manage chronic conditions or help them find ways to avoid preventable diseases by living a healthy lifestyle. Ideally, health psychology is where medicine and psychology work together to mediate the relationship between disease, thought, and behavior.

1.5 HISTORY

Health psychology developed in different forms in different societies. Psychological factors in health had been studied since the early 20th century by disciplines such aspsychosomatic medicine and later behavioral medicine, but these were primarily branches of medicine, not psychology.

United States In 1969, William Schofield prepared a report for the APA entitled *The Role of Psychology in the Delivery of Health Services*. While there were exceptions, he found that the psychological research of the time frequently regarded mental health and physical health as separate, and devoted very little attention to psychology's impact upon physical health. One of the few psychologists working in this area at the time, Schofield proposed new forms of education and training for future psychologists. The APA, responding to his proposal, in 1973 established a task force to consider how psychologists could (a) help people to manage their health-related behaviors, (b) help patients manage their physical health problems, and (c) train healthcare staff to work more effectively with patients.

Health psychology began to emerge as a distinct discipline of psychology in the United States in the 1970s. In the mid-20th century there was a growing understanding in medicine of the effect of behavior on health. For example, the Alameda County Study, which began in the 1960s, showed that people who ate regular meals (e.g., breakfast), maintained a healthy weight, received adequate sleep, did not smoke, drank little alcohol, and exercised regularly were in better health and lived longer. In addition, psychologists and other scientists were discovering relationships between psychological processes and physiological ones. These discoveries include a better understanding of the impact of psychosocial stress on the cardiovascular and immune systems,[and the early finding that the functioning of the immune system could be altered by learning.

Led by Joseph Matarazzo, in 1977, APA added a division devoted to health psychology. At the first divisional conference, Matarazzo delivered a speech that played an important role in defining health psychology. He defined the new field in this way, "Health psychology is the aggregate of the specific educational, scientific and professional contributions of the discipline of psychology to the promotion and maintenance of health, the prevention and treatment of illness, the identification of diagnostic and etiologic correlates of health, illness and related dysfunction, and the analysis and improvement of the healthcare system and health policy formation." In the 1980s, similar organizations were established elsewhere. In 1986, the BPS established a Division of Health Psychology. The European Health Psychology Society was also established in 1986. Similar organizations were established in other countries, including Australia and Japan.[Universities began to develop doctoral level training programs in health psychology. In the US, post-doctoral level health psychology training programs were established for individuals who completed a doctoral degree in clinical psychology.

United Kingdom Psychologists have been working in medical settings for many years (in the UK sometimes the field was termed medical psychology). Medical psychology, however, was a relatively small field, primarily aimed at helping patients adjust to illness. The BPS's reconsideration of the role of the Medical Section prompted the emergence of health psychology as a distinct field. Marie Johnston and John Weinman argued in a letter to the *BPS Bulletin* that there was a great need for a Health Psychology Section. In December 1986 the section was established at the BPS London Conference, with Marie Johnston as chair. At the Annual BPS Conference in 1993 a review of "Current Trends in Health Psychology" was organized, and a definition of health psychology as "the study of psychological and behavioural processes in health, illness and healthcare" was proposed.

The Health Psychology Section became a Special Group in 1993 and was awarded divisional status within the UK in 1997. The awarding of divisional status meant that the individual training needs and professional practice of health psychologists were recognized, and members were able to obtain chartered status with the BPS. The BPS went on to regulate training and practice in health psychology until the regulation of professional standards and qualifications was taken over by statutory registration with the Health Professions Council in 2010.

1.6 DISEASE

A **disease** is a particular abnormal condition that negatively affects the structure or function of all or part of an organism, and that is not due to any immediate external injury. Diseases are often known to be **medical conditions** that are associated with specific symptoms and signs. A disease may be caused by external factors such as pathogens or by internal dysfunctions. For example, internal dysfunctions of the immune system can

produce a variety of different diseases, including various forms of immunodeficiency, hypersensitivity, allergies and autoimmune disorders.

In humans, *disease* is often used more broadly to refer to any condition that causes pain, dysfunction, distress, social problems, or death to the person afflicted, or similar problems for those in contact with the person. In this broader sense, it sometimes includes injuries, disabilities, disorders, syndromes, infections, isolated symptoms, deviant behaviors, and atypicalvariations of structure and function, while in other contexts and for other purposes these may be considered distinguishable categories. Diseases can affect people not only physically, but also mentally, as contracting and living with a disease can alter the affected person's perspective on life.

Death due to disease is called death by natural causes. There are four main types of disease: infectious diseases, deficiency diseases, hereditary diseases (including both genetic diseases and non-genetic hereditary diseases), and physiological diseases. Diseases can also be classified in other ways, such as communicable versus non-communicable diseases. The deadliest diseases in humans are coronary artery disease (blood flow obstruction), followed by cerebrovascular disease andlower respiratory infections. In developed countries, the diseases that cause the most sickness overall are neuropsychiatric conditions, such as depression and anxiety.

Concepts

In many cases, terms such as disease, disorder, morbidity, sickness and illness are used interchangeably; however, there are situations when specific terms are considered preferable.

Disease

The term *disease* broadly refers to any condition that impairs the normal functioning of the body. For this reason, diseases are associated with dysfunctioning of the body's normal homeostatic processes. Commonly, the term is used to refer specifically to infectious diseases, which are clinically evident diseases that result from the presence ofpathogenic microbial agents, including viruses, bacteria, fungi, protozoa, multicellular organisms, and aberrant proteins known as prions. An infection or colonization that does not and will not produce clinically evident impairment of normal functioning, such as the presence of the normal bacteria and yeasts in the gut, or of a passenger virus, is not considered a disease. By contrast, an infection that is asymptomatic during its incubation period, but expected to produce symptoms later, is usually considered a disease.Non-infectious diseases are all other diseases, including most forms of cancer, heart disease, and genetic disease.

Acquired disease

An acquired disease is one that began at some point during one's lifetime, as opposed to disease that was already present at birth, which is congenital disease. *Acquired*sounds like it could mean "caught via

contagion", but it simply means acquired sometime after birth. It also sounds like it could imply secondary disease, but acquired disease can be primary disease.

Acute disease

An acute disease is one of a short-term nature (acute); the term sometimes also connotes a fulminant nature

Chronic condition or chronic disease

A chronic disease is one that persists over time, often characterized as at least six months but may also include illnesses that are expected to last for the entirety of one's natural life.

Congenital disorder or congenital disease

A congenital disorder is one that is present at birth. It is often a genetic disease or disorder and can be inherited. It can also be the result of a vertically transmitted infection from the mother, such as HIV/AIDS.

Genetic disease

A genetic disorder or disease is caused by one or more genetic mutations. It is often inherited, but some mutations are random and de novo.

Hereditary or inherited disease

A hereditary disease is a type of genetic disease caused by genetic mutations that are hereditary (and can run in families)

Iatrogenic disease

An iatrogenic disease or condition is one that is caused by medical intervention, whether as a side effect of a treatment or as an inadvertent outcome.

Idiopathic disease

An idiopathic disease has an unknown cause or source. As medical science has advanced, many diseases with entirely unknown causes have had some aspects of their sources explained and therefore shed their idiopathic status. For example, when germs were discovered, it became known that they were a cause of infection, but particular germs and diseases had not been linked. In another example, it is known that autoimmunity is the cause of some forms of diabetes mellitus type 1, even though the particular molecular pathways by which it works are not yet understood. It is also common to know certain factors are associated with certain diseases; however, association and causality are two very different phenomena, as a third cause might be producing the disease, as well as an associated phenomenon.

Incurable disease

A disease that cannot be cured. Incurable diseases are not necessarily terminal diseases, and sometimes a disease's symptoms can be treated sufficiently for the disease to have little or no impact on quality of life.

Primary disease

A primary disease is a disease that is due to a root cause of illness, as opposed to secondary disease, which is a sequela, or complication that

is caused by the primary disease. For example, a common cold is a primary disease, where rhinitis is a possible secondary disease, or sequela. A doctor must determine what primary disease, a cold or bacterial infection, is causing a patient's secondary rhinitis when deciding whether or not to prescribe antibiotics.

Secondary disease

A secondary disease is a disease that is a sequela or complication of a prior, causal disease, which is referred to as the primary disease or simply the underlying cause (root cause). For example, a bacterial infection can be primary, wherein a healthy person is exposed to a bacteria and becomes infected, or it can be secondary to a primary cause, that predisposes the body to infection. For example, a primary viral infection that weakens the immune system could lead to a secondary bacterial infection. Similarly, a primaryburn that creates an open wound could provide an entry point for bacteria, and lead to a secondary bacterial infection.

Terminal disease

A terminal disease is one that is expected to have the inevitable result of death. Previously, AIDS was a terminal disease; it is now incurable, but can be managed indefinitely using medications.

1.7 ILLNESS

The terms *illness* and *sickness* are both generally used as synonyms for *disease*; however, the term *illness* is occasionally used to refer specifically to the patient's personal experience of his or her disease. In this model, it is possible for a person to have a disease without being ill (to have an objectively definable, but asymptomatic, medical condition, such as a subclinical infection, or to have a clinically apparent physical impairment but not feel sick or distressed by it), and to be *ill* without being *diseased* (such as when a person perceives a normal experience as a medical condition, or medicalizes a non-disease situation in his or her life—for example, a person who feels unwell as a result of embarrassment, and who interprets those feelings as sickness rather than normal emotions). Symptoms of illness are often not directly the result of infection, but a collection of evolved responses—sickness behavior by the body—that helps clear infection and promote recovery. Such aspects of illness can include lethargy, depression,loss of appetite, sleepiness, hyperalgesia, and inability to concentrate.

Preventing illness

Health psychologists promote health through behavioral change, as mentioned above; however, they attempt to prevent illness in other ways as well. Health psychologists try to help people to lead a healthy life by developing and running programmes which can help people to make changes in their lives such as stopping smoking, reducing the amount of alcohol they consume, eating more healthily, and exercising regularly. Campaigns informed by health psychology have targeted tobacco use. Those least able to afford tobacco products consume them most. Tobacco provides individuals with a way of

controlling aversive emotional states accompanying daily experiences of stress that characterize the lives of deprived and vulnerable individuals. Practitioners emphasize education and effective communication as a part of illness prevention because many people do not recognize, or minimize, the risk of illness present in their lives. Moreover, many individuals are often unable to apply their knowledge of health practices owing to everyday pressures and stresses. A common example of population-based attempts to motivate the smoking public to reduce its dependence on cigarettes is anti-smoking campaigns.

Health psychologists help to promote health and well-being by preventing illness. Some illnesses can be more effectively treated if caught early. Health psychologists have worked to understand why some people do not seek early screenings or immunizations, and have used that knowledge to develop ways to encourage people to have early health checks for illnesses such as cancer and heart disease. Health psychologists are also finding ways to help people to avoid risky behaviors (e.g., engaging in unprotected sex) and encourage health-enhancing behaviors (e.g., regular tooth brushing or hand washing).

Health psychologists also aim at educating health professionals, including physicians and nurses, in communicating effectively with patients in ways that overcome barriers to understanding, remembering, and implementing effective strategies for reducing exposures to risk factors and making health-enhancing behavior changes.

There is also evidence from OHP that stress-reduction interventions at the workplace can be effective. For example, Kompier and his colleagueshave shown that a number of interventions aimed at reducing stress in bus drivers has had beneficial effects for employees and bus companies.

Disorder

A disorder is a functional abnormality or disturbance. Medical disorders can be categorized into mental disorders, physical disorders, genetic disorders, emotional and behavioral disorders, and functional disorders. The term *disorder* is often considered more value-neutral and less stigmatizing than the terms *disease* or *illness*, and therefore is preferred terminology in some circumstances. In mental health, the term *mental disorder* is used as a way of acknowledging the complex interaction of biological, social, and psychological factors in psychiatric conditions; however, the term *disorder* is also used in many other areas of medicine, primarily to identify physical disorders that are not caused by infectious organisms, such as metabolic disorders.

Medical condition

A **medical condition** is a broad term that includes all diseases, lesions, disorders, or nonpathologic condition that normally receives medical treatment, such as pregnancy orchildbirth. While the term *medical condition* generally includes mental illnesses, in some contexts the term is used specifically to denote any illness, injury, or disease except

for mental illnesses. The Diagnostic and Statistical Manual of Mental Disorders (DSM), the widely used psychiatric manual that defines all mental disorders, uses the term *general medical condition* to refer to all diseases, illnesses, and injuries except for mental disorders. This usage is also commonly seen in the psychiatric literature. Some health insurance policies also define a *medical condition* as any illness, injury, or disease except for psychiatric illnesses.

As it is more value-neutral than terms like *disease*, the term *medical condition* is sometimes preferred by people with health issues that they do not consider deleterious. On the other hand, by emphasizing the medical nature of the condition, this term is sometimes rejected, such as by proponents of the autism rights movement.

The term *medical condition* is also a synonym for *medical state*, in which case it describes an individual patient's current state from a medical standpoint. This usage appears in statements that describe a patient as being *in critical condition*, for example.

Morbidity

Morbidity (from Latin *morbidus*, meaning 'sick, unhealthy') is a diseased state, disability, or poor health due to any cause. The term may be used to refer to the existence of any form of disease, or to the degree that the health condition affects the patient. Among severely ill patients, the level of morbidity is often measured by ICU scoring systems.Comorbidity is the simultaneous presence of two or more medical conditions, such as schizophrenia and substance abuse.

In epidemiology and actuarial science, the term "morbidity rate" can refer to either the incidence rate, or the prevalence of a disease or medical condition. This measure of sickness is contrasted with the mortality rate of a condition, which is the proportion of people dying during a given time interval. Morbidity rates are used in actuarial professions, such as health insurance, life insurance, and long-term care insurance, to determine the correct premiums to charge to customers. Morbidity rates help insurers predict the likelihood that an insured will contract or develop any number of specified diseases.

1.8 TYPES BY BODY SYSTEM

Mental

Mental illness is a broad, generic label for a category of illnesses that may include affective or emotional instability, behavioral dysregulation, cognitive dysfunction or impairment. Specific illnesses known as mental illnesses include major depression, generalized anxiety disorders, schizophrenia, and attention deficit hyperactivity disorder, to name a few. Mental illness can be of biological (e.g., anatomical, chemical, or genetic) or psychological (e.g., trauma or conflict) origin. It can impair the affected person's ability to work or study and can harm interpersonal relationships. The term insanity is used technically as a legal term.

Organic

An organic disease is one caused by a physical or physiological change to some tissue or organ of the body. The term sometimes excludes infections. It

is commonly used in contrast with mental disorders. It includes emotional and behavioral disorders if they are due to changes to the physical structures or functioning of the body, such as after a stroke or a traumatic brain injury, but not if they are due to psychosocial issues.

STAGES

In an infectious disease, the incubation period is the time between infection and the appearance of symptoms. The latency period is the time between infection and the ability of the disease to spread to another person, which may precede, follow, or be simultaneous with the appearance of symptoms. Some viruses also exhibit a dormant phase, called viral latency, in which the virus hides in the body in an inactive state. For example, varicella zoster virus causes chickenpox in the acute phase; after recovery from chickenpox, the virus may remain dormant in nerve cells for many years, and later cause herpes zoster (shingles).

Acute disease

An acute disease is a short-lived disease, like the common cold.

Chronic disease

A chronic disease is one that lasts for a long time, usually at least six months. During that time, it may be constantly present, or it may go into remission and periodicallyrelapse. A chronic disease may be stable (does not get any worse) or it may be progressive (gets worse over time). Some chronic diseases can be permanently cured. Most chronic diseases can be beneficially treated, even if they cannot be permanently cured.

Clinical disease

One that has clinical consequences; in other words, the stage of the disease that produces the characteristic signs and symptoms of that disease. AIDS is the clinical disease stage of HIV infection.

Cure

A cure is the end of a medical condition or a treatment that is very likely to end it, while remission refers to the disappearance, possibly temporarily, of symptoms. Complete remission is the best possible outcome for incurable diseases.

Flare-up

A flare-up can refer to either the recurrence of symptoms or an onset of more severe symptoms.

Progressive disease

Progressive disease is a disease whose typical natural course is the worsening of the disease until death, serious debility, or organ failure occurs. Slowly progressive diseases are also chronic diseases; many are also degenerative diseases. The opposite of progressive disease is *stable disease* or *static disease*: a medical condition that exists, but does not get better or worse.

Refractory disease

A refractory disease is a disease that resists treatment, especially an individual case that resists treatment more than is normal for the specific disease in question.

Subclinical disease

Also called **silent disease**, **silent stage**, or **asymptomatic disease**. This is a stage in some diseases before the symptoms are first noted.

Terminal phase

If a person will die soon from a disease, regardless of whether that disease typically causes death, then the stage between the earlier disease process and active dying is the terminal phase.

1.9 WELL-BEING, WELLBEING, OR WELLNESS

Well-being, wellbeing, or wellness is the condition of an individual or group. A high level of well-being means that in some sense the individual's or group's condition is positive. According to Naci and Ioannidis, "Wellness refers to diverse and interconnected dimensions ofphysical, mental, and social well-being that extend beyond the traditional definition of health. It includes choices and activities aimed at achieving physical vitality, mental alacrity, social satisfaction, a sense of accomplishment, and personal fulfillment".

philosophical approaches

The Stanford Encyclopedia of Philosophy (*SEP*) entry for "well-being" identifies ways in which terms related to happiness differ. According to the *SEP*, the terms "happy", "wellness", "satisfaction", "pleasure" or "well-being" can refer to a series of possible states:

- reflection on past events
- moment-to-moment evaluations of happiness
- by oneself, or with another person
- inferred from neuroimaging
- inferred from sensory input (pain, pleasure)
- inferred from cognitive structure (dysfunctional thinking, delusion)
- inferred from virtue (is prayer inherently instrumental to well-being?)
- duration of the experience
- effect on other factors (e.g., personal agency, power)
- repetitiveness (is pleasure derived from addiction incompatible with happiness?)
- objectivity (is "healthy eating" or "sex" always pleasurable?)
- whether the experience is altruistic or egoistic,
- whether happiness reflects an emotional state (affect-based account)
- whether happiness reflects a cognitive judgement (life satisfaction account)

The affective and life-satisfaction views of happiness differ meaningfully when it comes to certain topics such as the relationship between income and happiness:

Scientific approaches

Three subdisciplines in psychology are critical for the study of psychological well-being:

1. Developmental psychology, in which psychological well-being may be analyzed in terms of a pattern of growth across the lifespan.
2. Personality psychology, in which it is possible to apply Maslow's concept of self-actualization, Rogers' concept of the fully functioning person, Jung's concept of individuation, and Allport's concept of maturity to account for psychological well-being.
3. Clinical psychology, in which it may be asserted that the absence of mental illness constitutes psychological well-being.

There are two approaches typically taken to understand psychological well-being:

1. Distinguishing positive and negative effects, and defining optimal psychological well-being and happiness as a balance between the two.
2. Emphasizes life satisfaction as the key indicator of psychological well-being.

Six-factor Model of Psychological Well-being

Carol Ryff's multidimensional model of psychological well-being postulated six factors which are key for well-being:

1. Self-acceptance
2. Personal growth
3. Purpose in life
4. Environmental mastery
5. Autonomy
6. Positive relations with others

UK Office for National Statistics (ONS) definition

The UK ONS defines wellbeing "as having 10 broad dimensions which have been shown to matter most to people in the UK as identified through a national debate. The dimensions are:

- the natural environment,
- personal well-being,
- our relationships,
- health,
- what we do,
- where we live,

- personal finance,
- the economy,
- education and skills, and
- governance.

Personal well-being is a particularly important dimension which we define as how satisfied we are with our lives, our sense that what we do in life is worthwhile, our day to day emotional experiences (happiness and anxiety) and our wider mental wellbeing."

The ONS then introduced four questions pertaining to wellbeing in their 2011 national survey of the UK population, relating to evaluative well-being, eudemonic well-being, and positive and negative affect. They later switched to referring to the construct being measured as "personal well-being".

5 major types of well-being

- Emotional Well-Being. The ability to practice stress-managementtechniques, be resilient, and generate the emotions that lead to good feelings.
- Physical Well-Being. The ability to improve the functioning of your body through healthy eating and good exercise habits.
- Social Well-Being. The ability to communicate, develop meaningful relationships with others, and maintain a support network that helps you overcome loneliness.
- Workplace Well-Being. The ability to pursue your interests, values, and purpose in order to gain meaning, happiness, and enrichment professionally.
- Societal Well-Being. The ability to actively participate in a thriving community, culture, and environment.

To build your overall well-being, you have to make sure *all* of these types are functioning to an extent.

Think of it like this: Imagine you are in a car. Your engine works great, and maybe your transmission works pretty well, too, but your brakes don't work. Because your brakes don't work, it doesn't really matter how well your engine works; you're still going to have trouble going about your life.

The same is true for your well-being. If everything else in your life is going great, but you feel lonely, or you're eating unhealthfully, other areas of your life will be affected, and you likely won't feel as well as you want to.

Because each part of well-being is important to your overall sense of well-being, let's talk about how to build each type of well-being:

Emotional Well-Being. To develop emotional well-being, we need to build emotional skills — skills like positive thinking, emotion regulation, andmindfulness, for example. Often, we need to build a variety of these skills to cope with the wide variety of situations we encounter in our lives. When we have built these emotional well-being skills, we can better cope with stress, handle our emotions in the face of challenges, and quickly recover from disappointments. As a result, we can enjoy our lives a bit more and pursue our goals a bit more effectively.

Here are some of the skills that research suggests contribute to emotional well-being:

- Happiness Skills
- Mindfulness Skills
- Positive Thinking Skills
- Resilience Skills

Physical Well-Being. To develop our physical well-being, we need to know what a healthy diet and exercise routine looks like, so that we can implement effective strategies in our daily lives. When we improve our physical well-being, not only do we feel better, our newfound health can also help prevent many diseases, boost our emotional well-being, and limit the number of health challenges we have to deal with in our lives.

Here are some of the things that can help you boost your physical well-being:

- Eating for Health
- Detoxing Your Body
- Correcting Nutritional Deficiencies
- Removing Plastic From Your Home

Unfortunately, it's possible to eat healthy but still be unhealthy. We can accidentally miss important foods or nutrients. Or we can overburden ourselves with toxins from plastic or processed food. As a result, we may need to eat additional foods, detox our bodies, or prevent these toxins from entering our bodies again. This is why it's essential to learn about health, so that we can make the right changes — those that lead to long-term health and well-being.

Social Well-Being. To develop social well-being, we need to build our social skills, like gratitude, kindness, and communication. Social skills make it easier for us to have positive interactions with others, helping us to feel less lonely,

angry, or disconnected. When we have developed our social well-being, we feel more meaningfully connected to others.

Here are some of the skills that research suggests contribute to better social well-being:

- Practicing Gratitude
- Building Meaningful Social Connections
- Managing Your Relationship with Technology

It's important to know that building social well-being is one the *best* ways to build emotional well-being. When we feel socially connected, we also tend to just feel better, have more positive emotions, and we are able to cope better with challenges. This is why it's essential to build our social well-being.

Workplace Well-Being. To develop our workplace well-being, we need to build skills that help us pursue what really matters to us. This can include building professional skills which help us to advance more effectively, but it also includes things like living our values and maintaining work-life balance. These skills let us enjoy our work more, helping us to stay focused, motivated, and successful at work. When we have developed workplace well-being, our work, and therefore each day, feels more fulfilling.

Here are some of the key skills you need for workplace well-being:

- Maintaining Work-Life Balance
- Finding Your Purpose

Because we spend so much time at work, building our workplace well-being has a big impact on our overall well-being.

Societal Well-Being. To develop societal well-being, we need to build skills that make us feel interconnected with all things. We need to know how to support our environment, build stronger local communities, and foster a culture of compassion, fairness, and kindness. These skills help us feel like we're part of a thriving community that really supports one another and the world at large. When we cultivate societal well-being, we feel like we are a part of something bigger than just ourselves.

Although each of us only makes up a tiny fraction of a society, it takes all of us to create societal well-being. If each of us did one kind act for someone else in our community, then we would live in a very kind community. Or if all of us decide we are going to recycle, then suddenly we create a world with significantly less waste. In order to live in a healthy society, we too need to contribute to making a healthy society.

Here are some of the skills you can build for greater societal well-being:

- Living Your Values
- Creating a Plastic-Free Home
- Making Positive Impacts in Other People's Lives
- Kindness

Who Benefits Most from Building Well-Being?

Not everyone experiences the same benefits from building their well-being. For example, lots of research suggests that the more motivated you are to build well-being skills, the greater the impact. Perhaps this is not surprising.

Still other research shows that having skills like a growth mindset or a positive attitude can actually help you build your other well-being skills more easily. This is why I tend to encourage people to build these skills first — afterward, you may be able to increase the other types of well-being more easily.

In addition, building well-being skills is perhaps most beneficial for people struggling the most, particularly if they've recently undergone somethingstressful. It may be harder to build well-being during this time, but the impact may be greater, because there is more room for improvement.

1.10 QUALITY OF LIFE

Quality of life (QOL) is an overarching term for the quality of the various domains in human life. It is an expected standard level that consists of the expectations of an individual or society for a good life. These expectations are guided by the values, goals and socio-cultural context in which an individual lives. QOL is a subjective, multidimensional concept that defines a standard level for emotional, physical, material and social well-being. It serves as a reference against which an individual or society can measure the different domains of a personal life. The extent to which one's own life coincides with a desired standard level - or, put differently, the degree to which these domains give satisfaction and as such contribute to one's subjective well-being - is called life satisfaction.

Quality of life is the general well-being of individuals and societies, outlining negative and positive features of life. It observes life satisfaction, including everything from physical health, family, education, employment, wealth, safety, security to freedom, religious beliefs, and the environment. QOL has a wide range of contexts, including the fields ofinternational development, healthcare, politics and employment. It is important not to mix up the concept of QOL with a more recent growing area

of health related QOL(HRQOL). An assessment of HRQOL is effectively an evaluation of QOL and its relationship with health.

Quality of life should not be confused with the concept of standard of living, which is based primarily on income.

Standard indicators of the quality of life include not only wealth and employment but also the built environment, physical and mental health, education, recreation and leisure time, and social belonging. According to the World Health Organization (WHO), quality of life is defined as "the individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals." In comparison to WHO's definitions, the Wong-Baker Faces Pain Rating Scale defines quality of life as "life quality (in this case, physical pain) at a precise moment in time."

According to ecological economist Robert Costanza:

While Quality of Life (QOL) has long been an explicit or implicit policy goal, adequate definition and measurement have been elusive. Diverse "objective" and "subjective" indicators across a range of disciplines and scales, and recent work on subjective well-being (SWB) surveys and the psychology of happiness have spurred renewed interest.

One approach, called engaged theory, outlined in the journal of *Applied Research in the Quality of Life*, posits four domains in assessing quality of life: ecology, economics, politics and culture. In the domain of culture, for example, it includes the following subdomains of quality of life:

- Belief and ideas
- Creativity and recreation
- Enquiry and learning
- Gender and generations
- Identity and engagement
- Memory and projection
- Well-being and health

Also frequently related are concepts such as freedom, human rights, and happiness. However, since happiness is subjective and difficult to measure, other measures are generally given priority. It has also been shown that happiness, as much as it can be measured, does not necessarily increase correspondingly with the comfort that results from increasing income. As a result, standard of living should not be taken to be a measure of happiness. Also sometimes considered related is the concept of human security, though the latter may be considered at a more basic level and for all people.

1.11 TERMINOLOGIES

1. Disease 2. Medical 3. Genetic 4. Illness 5. Sysmptoms

1.12 MODEL QUESTIONS

1.Explain the types of Health Psychology?

2. Bringout the Need and Significance?

3. Discuss the types by Body System?

4. Explain the Quality of Life?

5. Discuss the Illness?

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UNIT-II HEALTH PSYCHOLOGY

Structure

2.1 INTRODUCTION

Health psychology, like other areas of applied psychology, is both a theoretical and applied field. Health psychologists employ diverse research methods. These methods include controlled randomized experiments, quasi-experiments, longitudinal studies, time-series designs, cross-sectional studies, case-control studies, qualitative research as well asaction research. Health psychologists study a broad range of health phenomena including cardiovascular disease, (cardiac psychology), smoking habits, the relation of religious beliefs to health, alcohol use, social support, living conditions, emotional state, social class, and more. Some health psychologists treat individuals with sleep problems, headaches, alcohol problems, etc. Other health psychologists work to empower community members by helping community members gain control over their health and improve quality of life of entire communities.

2.2 MIND-BODY RELATIONSHIP

Awareness of the mind-body connection is by no means new. Until approximately 300 years ago, virtually every system of medicine throughout the world treated the mind and body as a whole. But during the 17th century, the Western world started to see the mind and body as two distinct entities. In this view, the body was kind of like a machine, complete with replaceable, independent parts, with no connection whatsoever to the mind.

This Western viewpoint had definite benefits, acting as the foundation for advances in surgery, trauma care, pharmaceuticals, and other areas of allopathic medicine. However, it also greatly reduced scientific inquiry into humans' emotional and spiritual life, and downplayed their innate ability to heal.

In the 20th century, this view gradually started to change. Researchers began to study the mind-body connection and scientifically demonstrate complex links between the body and mind. Integrative psychiatrist James Lake, MD, of Stanford University, writes that "extensive research has confirmed the medical and mental benefits of meditation, mindfulness training, yoga, and other mind-body practices."

body-mind therapies

Related to mind-body therapies are therapies that use the body to affect the mind, such as yoga, tai chi, qigong, and some types of dance (these are sometimes called body-mind therapies). Ultimately mind-body and body-mind therapies are interrelated: the body affects the mind, which in turn impacts the body (and the mind.)

- Patient support groups
- Cognitive-behavioral therapy
- Meditation
- Prayer
- Creative arts therapies (art, music, or dance)
- Yoga
- Biofeedback
- Tai chi
- Qigong
- Relaxation
- Hypnosis
- Guided imagery

2.3 MIND–BODY PROBLEM

The **mind–body problem** is a debate concerning the relationship between thought and consciousness in the human mind, and the brain as part of the physical body. It is distinct from the question of how mind and body function chemically and physiologically, as that question presupposes an interactionist

account of mind–body relations. This question arises when mind and body are considered as distinct, based on the premise that the mind and the body are fundamentally different in nature.

The problem was addressed by René Descartes in the 17th century, resulting in Cartesian dualism, and by pre-Aristotelian philosophers, in Avicennian philosophy, and in earlier Asian traditions. A variety of approaches have been proposed. Most are either dualist or monist. Dualism maintains a rigid distinction between the realms of mind and matter. Monism maintains that there is only one unifying reality, substance or essence, in terms of which everything can be explained.

Each of these categories contains numerous variants. The two main forms of dualism are substance dualism, which holds that the mind is formed of a distinct type of substance not governed by the laws of physics, and property dualism, which holds that mental properties involving conscious experience are fundamental properties, alongside the fundamental properties identified by a completed physics. The three main forms of monism are physicalism, which holds that the mind consists of matter organized in a particular way; idealism, which holds that only thought truly exists and matter is merely an illusion; and neutral monism, which holds that both mind and matter are aspects of a distinct essence that is itself identical to neither of them. Psychophysical parallelism is a third possible alternative regarding the relation between mind and body, between interaction (dualism) and one-sided action (monism).

Several philosophical perspectives have been developed which reject the mind–body dichotomy. The historical materialism of Karl Marx and subsequent writers, itself a form of physicalism, held that consciousness was engendered by the material contingencies of one's environment. An explicit rejection of the dichotomy is found in French structuralism, and is a position that generally characterized post-war Continental philosophy.

The absence of an empirically identifiable meeting point between the non-physical mind (if there is such a thing) and its physical extension (if there is such a thing) has proven problematic to dualism, and many modern philosophers of mind maintain that the mind is not something separate from the body. These approaches have been particularly influential in the sciences, particularly in the fields of sociobiology, computer science, evolutionary psychology, and theneurosciences.

An ancient model of the mind known as the Five-Aggregate Model, described in the Buddhist teachings, explains the mind as continuously changing sense impressions and mental phenomena. Considering this model, it is possible to understand that it is the constantly changing sense impressions and mental phenomena (i.e., the mind) that experiences/analyzes all external phenomena in the world as well as all internal phenomena including the body anatomy, the nervous system as well as the organ brain. This conceptualization leads to two levels of analyses: (i) analyses conducted from a third-person perspective on how the brain works, and (ii) analyzing the moment-to-moment manifestation of an individual's mind-stream (analyses conducted from a first-person perspective). Considering the latter, the manifestation of the mind-stream is

described as happening in every person all the time, even in a scientist who analyses various phenomena in the world, including analyzing and hypothesizing about the organ brain.

2.4 NEED FOR HEALTH PSYCHOLOGY

The purpose of health psychology is to educate, inform, and enable patients to mitigate physical health problems. It is a non-traditional approach to health through understanding how the mind and body work together. It can help patients manage chronic conditions or find ways to prevent disease.

According to the American Psychological Association, health psychologists "help patients manage chronic disease and avoid preventable diseases" by "incorporating psychological theory and research to develop methods to assist patients in maintaining healthy lifestyles."

In a sentence, that is what health psychologists strive to do — educate and inform patients so that they can take control of their health. But what exactly is health psychology? Can a health psychologist potentially help you? Read on to get a detailed look at this burgeoning field from two health psychologists.

2.5 WHAT IS HEALTH PSYCHOLOGY? HOW CAN IT HELP YOU?

"Health psychology really comes from where medicine and psychology can work symbiotically," Withrow said. It is taking our knowledge of mind and body and using it to understand and help individuals cope better, manage their pain and essentially learn to empower themselves.

Health psychology encompasses a wide range of issues — from chronic pain to terminal illness — with the goals of helping people improve their quality of life and addressing specific health issues. Maureen Lyon, Ph.D., clinical health psychologist and associate research professor in pediatrics at George Washington University, said, "Health psychologists do a lot of prevention work around a range of issues from preventing obesity, maintaining a positive outlook in life, preventing anxiety and depression and trying to enhance the quality of life of individuals."

Health psychologists also play a big role in the military, helping soldiers and veterans with post-traumatic stress disorder (PTSD), life adjustment and suicide prevention.They also promote healthy behaviors and deal with underlying psychological issues such as stress, depression and anxiety. Unlike other clinical psychologists, Withrow explained that health psychologists are trained to know about the "disease processes and physiology and how the mind and body can work together on what's going on with a specific illness in

order to help that person deal with whatever issues they are being presented with."
A person who has insomnia, for example, may work with a health psychologist on creating a regular bedtime routine, limiting their caffeine intake and participating in relaxation activities before bed. Someone who is suffering from chronic pain could also benefit from seeing a health psychologist. While health psychologists do not solely advocate patients to stop taking their medication, Withrow said, "there are a lot of things we can do behaviorally, things we can do using your mind and behavior to better manage pain without needing to rely on medication or on the same dosage of medication." For example, stress management tools and relaxation techniques can help chronic pain patients cope more effectively with stress. This is important, she said, since stress often exacerbates pain.

2.6 UNDERSTANDING THE THOUGHTS BEHIND BEHAVIOR

One of the ways health psychologists help patients is through education. They inform patients on a basic level about their body and their illness. If patients can understand why their body is acting or reacting a certain way, then they will be able to understand how things like stress management, for example, can help.

Another part of patient education is learning about the relationship between thought and behavior. Withrow gives an example of a person with chronic pain. On a good day, this person may overcompensate by doing too much. As a result, stress and fatigue may cause an increase in pain. A health psychologist would then work with this patient on trying to find ways to "keep a consistent level of activity."

She also uses cognitive tools to help patients. "If you're really, really worried about something, if you really think there's going to be a flareup, you may think yourself into a flareup instead of being able to step back and taking a more objective look." Using cognitive-behavioral techniques can help patients reduce their pain and anxiety and could potentially reduce their dependency on medication.

2.7 HEALTH PSYCHOLOGY'S HOLISTIC APPROACH

Health psychology provides a holistic perspective to health. It takes into account not only a person's physical illness and symptoms but also their life experience. According to Withrow, this means that patients should be seen in context, "not just what's going on physically and emotionally, but what their relationships are like, how much support they have, their community and how all that fits together to present the person we're seeing in front of us." The information they collect about a patient includes biological characteristics (e.g., genetic predisposition to illness), behavior (stress, negative thoughts, values) and social factors (social support, relationships).

2.8 BIOPSYCHOSOCIAL MODEL IN HEALTH PSYCHOLOGY

The biopsychosocial model views health and illness behaviors as products of*biological characteristics* (such as genes), *behavioral factors* (such as lifestyle, stress, and health beliefs), and *social conditions* (such as cultural influences, family relationships, and social support). Health psychologists work with healthcare professionals and patients to help people deal with the psychological and emotional aspects of health and illness. This can include developing treatment protocols to increase adherence to medical treatments, weight loss programs, smoking cessation, etc. Their research often focuses on prevention and intervention programs designed to promote healthier lifestyles (e.g., exercise and nutrition programs).

Definition

biopsychosocial model of health and illness is a framework developed by George L. Engel that states that interactions between biological, psychological, and social factors determine the cause, manifestation, and outcome of wellness and disease.

Health psychology, often referred to as *behavioral medicine* or *medical psychology*, is the application of psychological theory to health-related practices. The field of health psychology includes two sub-fields. *Behavioral health* focuses on prevention of health problems and illnesses, while *behavioral medicine* focuses on treatment. Health psychology is concerned with the psychology of a range of health-related behaviors, including nutrition, exercise, healthcare utilization, and medical decision-making.



"Healthy eating tips" by the U.S. National Cancer Institute: Nutrition is often researched by health psychologists.

2.9GOALS OF HEALTH PSYCHOLOGY

There are eight major goals of health psychology:

1. understanding behavioral and contextual factors for health and illness
2. preventing illness
3. investigating the effects of disease
4. providing critical analyses of health policies
5. conducting research on prevention of and intervention in health problems
6. improving doctor-patient communication
7. improving adherence to medical advice
8. finding treatments to manage pain.

2.10 FOCUSES OF HEALTH PSYCHOLOGY

Health psychology addresses individual and population-level issues across four domains: clinical, public, community, and critical (social justice).

Clinical Health Psychology
Clinical health psychology refers to the application of scientific knowledge to clinical questions that arise across the spectrum of healthcare. Because it focuses on the prevention and treatment of health problems, clinical health psychology is a specialty practice area for clinical psychologists. Clinical practice includes education on mechanisms of behavior change and psychotherapy.

Public Health Psychology
Public health psychology investigates potential causal links between psychosocial factors and health at the population level. Public health psychologists present research results on epidemiological findings related to health behaviors to educators, policy makers, and health care providers in order to promote public health initiatives for at-risk groups.

Community Health Psychology
Community health psychology investigates community factors that contribute to the health and well-being. Community health psychology also develops community-level interventions that are designed to combat disease and promote physical and mental health. Examples of community health initiatives might be efforts to eliminate soft drinks from schools, diabetes awareness events, etc.

Critical Health Psychology
Critical health psychology is concerned with the distribution of power and the impact of power differentials on health behaviors, healthcare systems, and health policy. Critical health psychology prioritizes social justice and the universal right to good health for people of all races, genders, ages, and

socioeconomic positions. A major concern is health inequality, and the critical health psychologist acts as an agent of change working to create equal access to healthcare.

2.11 TERMINOLOGIES

1.Mind-body 2. Health Psychology3. Behavior 4. Relationship 5.Problem

2.12 MODEL QUESTIONS

1.Explain the mind-body Relationship?

2. Discuss the needs for Health Psychology?

3. Discuss the Understanding the thoughts behind behavior?

4. Explain the Biopsychosocial model in Health psychology?

5. Bring out the Goals of Health Psychology?

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UNIT- III HEALTH BEHAVIOR

Structure

3.1INTRODUCTION

Health literacy is the ability to obtain, read, understand, and use healthcare information in order to make appropriate health decisions and follow instructions for treatment. There are multiple definitions of health literacy, in part, because health literacy involves both the context (or setting) in which health literacy demands are made (e.g., health care, media, internet or fitness facility) and the skills that people bring to that situation.

Since health literacy is a primary contributing factor to health disparities, it is a continued and increasing concern for health professionals. The 2003 National Assessment of Adult Literacy (NAAL) conducted by the US Department of Education found that 36% of participants scored as either "basic" or "below basic" in terms of their health literacy and concluded that approximately 80 million Americans have limited health literacy. These individuals have difficulty with common health tasks including reading the label of a prescribed drug. Several factors may influence health literacy. However, the following factors have been shown to strongly increase this risk: age (especially patients

65 years and older), limited English language proficiency or English as a second language, less education, and lower socioeconomic status. Patients with low health literacy understand less about their medical conditions and treatments and overall report worse health status.

Various interventions, such as simplifying information and illustrations, avoiding jargon, using "teach-back" methods, and encouraging patients' questions, have improved health behaviors in persons with low health literacy. The proportion of adults aged 18 and over in the U.S., in the year 2010, who reported that their health care providers always explained things so they could understand them was about 60.6%. This number increased 1% from 2007 to 2010. The Healthy People 2020 initiative of the United States Department of Health and Human Services has included health literacy as a pressing new topic, with objectives for improving it in the decade to come.

Society as a whole is responsible for improving health literacy. Most importantly, improving health literacy is the responsibility of healthcare and public health professionals and systems.

3.2 CHARACTERISTICS

Plain language

Plain Language refers to the use of writing strategies that help readers find, understand, and apply information to fulfill their needs. It has a vital role to play in improving health literacy. In conjunction with readers education, provider cultural training, and system design, plain language helps people make more informed health choices.

Plain language is not, however, a one-size-fits-all approach. Some strategies can be used to improve communication among medical professionals, while others will improve communication with patients and caregivers. It is in this area of provider-patient communication that health literacy efforts have been strongest. Patients and consumers in general need to understand concepts that professionals often refer to in technical terms. Health professionals must know their audience in order to better serve their patients and general readers or listeners.

Plain language is defined by the International Plain Language Federation as writing whose "wording, structure, and design are so clear that the intended readers can easily find what they need, understand what they find, and use that information.“

Some key elements of plain language include:

- Organizing information so most important points come first
- Breaking complex information into understandable chunks
- Using simple language or language familiar to the reader
- Defining technical terms and acronyms
- Using active voice in SVO (subject-verb-object) sentences when subject/agent/topic coincide

- Varying sentence length and structure to avoid monotony
- Using lists and tables to make complex material easier to understand

The National Institute of Health (NIH) recommends that patient education materials be written at a 6th-7th grade reading level; further recommendations provided by the NIH Office of Communications and Public Liaison are published in their "Clear Communication" Initiative.

International expert Romina Marazzato Sparano also recommends strategies for peer-to-peer medical communication and asserts "plain language is also for experts." She promotes a "step-wise approach" to writing materials for the general public whereby a clear technical version (often the result of editing a not so clear one) serves as the basis for a clear lay version. She insists term replacement in technical writing is not enough to turn a technical communication into a lay communication. Writers must also consider information density, depth, flow, relevance, register, and style

Factors

Many factors determine the health literacy level of health education materials or interventions: readability of the text, the patient's current state of health, language barriers of the patient, cultural appropriateness of the materials, format and style, sentence structure, use of illustrations, and numerous other factors.

A study of 2,600 patients conducted in 1995 by two US hospitals found that between 26% and 60% of patients could not understand medication directions, a standard informed consent form, or materials about scheduling an appointment. The 2003 National Assessment of Adult Literacy (NAAL) conducted by the US Department of Education found that 36% of participants scored as either "basic" or "below basic" in terms of their health literacy and concluded that approximately 80 million Americans have limited health literacy.

3.3 E-HEALTH LITERACY

eHealth literacy describes an individual's ability to search for, access, comprehend, and appraise desired health information from electronic sources and to then use such information to attempt to address a particular health problem. It has become an important topic of research due to the increasing use of the internet for health information seeking and health information distribution. Stellefson (2011) states, "8 out of 10 Internet users report that they have at least once looked online for health information, making it the third most popular Web activity next to checking email and using search engines in terms of activities that almost everybody has done." Though in recent years, individuals may have gained access to a multitude of health information via the Internet, access alone does not ensure that proper search skills and techniques are being used to find the most relevant online and electronic resources. As the line between a reputable medical source and an amateur opinion can often be blurred, the ability to differentiate between the two is important.

Health literacy requires a combination of several different literacy skills in order to facilitate eHealth promotion and care. Six core skills are delineated by an eHealth literacy model referred to as the Lily model. The Lily Model's six literacies are organized into two central types: analytic and context-specific. Analytic type literacies are those skills that can be applied to a broad range of sources, regardless of topic or content (i.e., skills that can also be applied to shopping or researching a term paper in addition to health) whereas context-specific skills are those that are contextualized within a specific problem domain (can solely be applied to health). The six literacies are listed below, the first three of the analytic type and the latter three of the context-specific:

- Traditional literacy
- Media literacy
- Information literacy
- Computer literacy
- Scientific literacy
- Health literacy

3.4 DEVELOPMENT OF A HEALTH LITERACY PROGRAM

A successful health literacy program will have many goals that all work together to improve health literacy. Many people assume these goals should communicate health information to the general public, however in order to be successful the goals should not only communicate with people but also take into account social and environmental factors that influence lifestyle choices. A good example of this is the movement to end smoking. When a health literacy program is put into place where only the negative side effects of smoking are told to the general public it is doomed to fail. However, when there is a larger program put in – one that includes strategies outlining how to quit smoking, raises tobacco prices, reduces access to tobacco by minors, and reflect social a social unacceptability of smoking – it will be much more effective.

The U.S. Department of Health and Human Services suggests a National Action Plan to implement a comprehensive Health Literacy Program. They include 7 goals:

1. Develop and disseminate health and safety information that is accurate, accessible, and actionable
2. Promote changes in the health care system that improve health information, communication, informed decision making, and access to health services
3. Incorporate accurate, standards-based, and developmentally appropriate health and science information and curricula in child care and education through the university level
4. Support and expand local efforts to provide adult education, English language instruction, and culturally and linguistically appropriate health information services in the community

5. Build partnerships, develop guidance, and change policies
6. Increase basic research and the development, implementation, and evaluation of practices and interventions to improve health literacy
7. Increase the dissemination and use of evidence-based health literacy practices and interventions

These goals should be taken into account when implementing a health literacy program.

There are also goals for the outcomes of a Health Literacy Program.

Health Related Goals

- Promoting and protect health and prevent disease
- Understand, interpret, and analyze health information
- Apply health information over a variety of life events and situations
- Navigate the healthcare system
- Actively participate in encounters with healthcare professionals and workers
- Understand and give consent
- Understand and advocate for rights

In the creation of a program aimed to improve health literacy, it is also important to ensure that all parties involved in health contexts are on the same page. To do this, programs may choose to include the training of case managers, health advocates, and even doctors and nurses. Due to the common overestimations of health literacy levels of patients, the education of health literacy topics and training in the identification of low health literacy in patients may be able to create significant positive change in the understanding of health messages. The Health Belief Model has been used in the training of health professionals in order to share insight on the knowledge that it has been shown to most likely change health perceptions and behaviors of their patients. The use of the health belief model can provide basis for which patient health literacy may grow. The training of health workers may be seen as a "work around intervention" but is still a viable option and opportunity for mediating the negative outcomes of low health literacy. Effective health literacy programs are created with cultural competency, and individuals working within health institutions can support individuals with low health literacy by being culturally competent themselves.

In working to improve the health literacy of individuals, a multitude of approaches may be taken. Systematic reviews of studied interventions reveal that one works to improve health literacy in one patient may not work for another patient. In fact, some interventions were found to worse health literacy in individuals. Nonetheless, studies have illuminated general approaches that help individuals understand health messages. A review of 26 studies concluded that "intensive mixed-strategy interventions focusing on self-management" and "theory basis, pilot testing, emphasis on skill building, and delivery by a health professional" do aid in increasing levels of health literacy among patients. Another study revealed that programs aimed at targeting more

than one behavior through increased health literacy are no less successful than programs with a single focus. The importance of dignity and respect is emphasized when creating programs for increasing health literacy of vulnerable individuals. In intervention programs created for homeless individuals in specific, it has been found that “successful intervention programs use aggressive outreach to bring comprehensive social and health services to sites where homeless people congregate and allow clients to set the limits and pace of engagement”. A social justice model is recommended for homeless individuals which is based on shared support of the community and their health literacy needs by those who provide services for this underserved group as well as the professionals who create and implement health literacy interventions.

3.5 HEALTH AND BEHAVIOR CHANGE

Health behavior is a key determinant of overall health, and a person's health behavior is in turn highly dependent on that person's mental health and psychological state. Many noncommunicable diseases such as cardiovascular disease and diabetes are linked to unhealthy behavior such as alcohol and tobacco use, poor diet, and a sedentary lifestyle. Health behavior is also an important determinant of communicable diseases through, for example, unsafe sex practices. Health-care-seeking behavior is similarly influenced by mental health. Three exemplars of theoretical models on health behavior change need mention.

Theory of Planned Behavior

The Theory of Planned Behavior (TPB) postulates that the likelihood of an individual engaging in a health behavior (for example, regular exercise) is correlated with the strength of his or her intention to engage in the behavior. A behavioral intention represents an individual's commitment to act and is itself the outcome of a combination of several variables. According to the TPB, the factors that directly influence intentions to engage in a health behavior include the person's attitudes toward the behavior, the person's perception of subjective group norms concerning the behavior, and the extent to which the person perceives him- or herself to have control concerning the behavior (Fishbein, 2002).

3.6 HEALTH BELIEF MODEL

The Health Belief Model (HBM) hypothesizes that health-related behavior depends on the combination of several factors, namely, perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy. Perceived susceptibility refers to an individual's opinion of the chances of contracting the illness condition. Perceived severity refers to an individual's opinion of how serious a condition and its consequences are. Perceived benefits refer to one's belief in the efficacy of the recommended health behavior in reducing the risk or seriousness of the condition. Perceived barriers refer to the perception of cost associated with adhering to a recommended health behavior if it is likely to be beneficial in reducing or eliminating the perceived threat. Self-efficacy refers to the level of confidence in one's ability to perform the health behavior in question. Those

persons who have low self-efficacy will have low confidence in their ability, which will have an effect on the likelihood of the behavior being performed. The HBM has been applied with considerable success to a range of health behaviors and populations, particularly preventive behaviors, such as diet, exercise, smoking cessation, vaccination, and contraception and sick role behaviors such as adherence to recommended medical treatments.

The Transtheoretical Model

This theory proposes that individuals progress through five interlocking stages in their effort to engage in health behaviors. Precontemplation is the time during which people are not seriously thinking about changing the behavior that will permit the attainment of better health. In this stage, individuals are either unaware or underaware of their health problems and the need to alter their behavior. During the stage of contemplation, people are aware that a health problem exists and have earnestly begun thinking about behavior change but have not yet committed themselves to taking action. The third stage of the model is preparation, in which the individual is preparing to enact the health behavior in question. The next stage is the action stage, when individuals are making unambiguous changes in their behavior, experiences, or environment in order to address health problems. The beginning of the maintenance stage is sometimes defined as 6 months following taking overt action to engage in the desired health behavior. Progression through the stages defined by the model is not necessarily linear since in many instances relapses occur and individuals return to either the precontemplation or contemplation stages before finally succeeding in maintenance.

Changes in Behavior

Health behaviors and lifestyle have an influence on infectious disease. Smoking, alcohol consumption, and physical exercise all influence vulnerability to infection and the duration of symptoms. Malnutrition is probably the principal cause of diminished immunity and susceptibility to infection across the world. Although severe protein energy malnutrition is rare in developed countries, undernutrition is common among the elderly and impairs immune resistance. If the pattern of health behaviors is altered in relation to psychosocial factors such as life stress, then the acquisition and course of infectious disease may be modified. Behaviors can have direct effects on infectious disease, such as when sexual behavior stimulates the reactivation of latent herpes virus, or the acquisition of human papilloma virus and risk of cervical cancer. Behaviors related to health service utilization are associated with socioeconomic status in the developing world, and play an important role in determining risk of diseases such as malaria

3.7 FACTORS INFLUENCING HEALTH BEHAVIOURS

Factors Influencing Health Behaviors Age, gender, race, place of residence, SES, and social support have research that supports their influence on health behaviors. In particular, there appears to be very strong evidence that social support and SES in- fluence health in a multitude of ways. Many factors combine together to affect the health of individuals and communities. Whether

people are healthy or not, is determined by their circumstances and environment. To a large extent, factors such as where we live, the state of our environment, genetics, our income and education level, and our relationships with friends and family all have considerable impacts on health, whereas the more commonly considered factors such as access and use of health care services often have less of an impact.

The determinants of health include:

- the social and economic environment,
- the physical environment, and
- the person's individual characteristics and behaviours.

The context of people's lives determine their health, and so blaming individuals for having poor health or crediting them for good health is inappropriate. Individuals are unlikely to be able to directly control many of the determinants of health. These determinants—or things that make people healthy or not—include the above factors, and many others:

- Income and social status - higher income and social status are linked to better health. The greater the gap between the richest and poorest people, the greater the differences in health.
- Education – low education levels are linked with poor health, more stress and lower self-confidence.
- Physical environment – safe water and clean air, healthy workplaces, safe houses, communities and roads all contribute to good health. Employment and working conditions – people in employment are healthier, particularly those who have more control over their working conditions
- Social support networks – greater support from families, friends and communities is linked to better health. Culture - customs and traditions, and the beliefs of the family and community all affect health.
- Genetics - inheritance plays a part in determining lifespan, healthiness and the likelihood of developing certain illnesses. Personal behaviour and coping skills – balanced eating, keeping active, smoking, drinking, and how we deal with life's stresses and challenges all affect health.
- Health services - access and use of services that prevent and treat disease influences health
- Gender - Men and women suffer from different types of diseases at different ages.

3.8MODIFICATION OF HEALTH BEHAVIOUR

Behavior modification can contribute to the success of self-control, and health-enhancing behaviors. ...Health behavior change refers to the motivational, volitional, and action based processes of abandoning such health-compromising behaviors in favor of adopting and maintaining health-enhancingbehaviors.

Behavior change, in context of public health, refers to efforts put in place to change people's personal habits and attitudes, to

prevent disease. Behavior change in public health is also known as social and behavior change communication (SBCC). More and more, efforts focus on prevention of disease to save healthcare care costs. This is particularly important in low and middle income countries, such as Ghana, where health interventions have come under increased scrutiny because of the cost.

Theories

Behavior change programs tend to focus on a few behavioral change theories which gained ground in the 1980s. These theories share a major commonality in defining individual actions as the locus of change. Behavior change programs that are usually focused on activities that help a person or a community to reflect upon their risk behaviors and change them to reduce their risk and vulnerability are known as interventions. Examples include: "Transtheoretical (Stages of Change) Model of Behavior Change", "theory of reasoned action", "health belief model", "theory of planned behavior", diffusion of innovation", and the health action process approach. Developments in health behavior change theories since the late 1990s have focused on incorporating disparate theories of health behavior change into a single unified theory.

Individual and interpersonal

- **Health belief model**: It is a psychological model attempting to provide an explanation and prediction of health behaviors through a focus on the attitudes and beliefs of individuals. Based on the belief that the perception an individual has determines their success in taking on that behavior change. Factors: perceived susceptibility/severity/benefits/barriers, readiness to act, cues to action, and self-efficacy.
- **Protection motivation theory**: Focuses on understanding the fear appeal that mediates behavior change and describes how threat/coping appraisal is related to how adaptive or maladaptive when coping with a health threat. Factors: perceived severity, vulnerability, response efficacy.
- **Transtheoretical model:** This theory uses "stages of change" to create a nexus between powerful principles and processes of behavior change derived from leading theories of behavior change. Incorporates aspects of the integrative biopsychosocial model (CITE).
- **Self-regulation theory:** Embodies the belief that people have control over their own behavior change journey, as long as they have the resources and understanding to do so. Aims to create long-term effects for particular situations and contexts. Mainly focuses on stopping negative behaviors.
- **Relapse prevention model:** Focuses on immediate determinants and underhanded antecedent behaviors/factors that contribute and/or lead to relapse. Aims to identify high-risk situations and work with participants to cope with such conditions. Factors: self-efficacy, stimulus control.

- **Behaviorist learning theory:** Aims to understand prior context of behavior development that leads to certain consequences.
- **Social cognitive theory**: Explains behavior learning through observation and social contexts. Centered on the belief that behavior is a context of the environment through psychological processes. Factors: self-efficacy, knowledge, behavioral capability, goal setting, outcome expectations, observational learning, reciprocal determinism, reinforcement.
- **Self-determination theory:** Centers around support for natural and/or intrinsic tendencies with behavior and provides participants with healthy and effective ways to work with those. Factors: autonomy, competence, and skills.
- **Theory of planned behavior:** Aims to predict the specific plan of an individual to engage in a behavior (time and place), and apply to behaviors over which people have the ability to enact self-control over. Factors: behavioral intent, evaluation of risks and behavior.

3.9LIST OF BEHAVIOR CHANGE STRATEGIES

- Motivational interviewing
- Goal oriented technique for eliciting and strengthening intrinsic motivation for change.
- Behavioral contract
- Intent formation, making a commitment, being ready to change. (usually written)
- Knowledge
- Educational information through behavior, consequences and benefits, getting help, acquisition of skills.
- Behavioral capabilities
- Skill development through practice, modeling, imitation, reenacting, rehearsing.
- Choices
- Building autonomy and intrinsic motivation through relevance, interests and control
- Graded tasks
- Planning ahead
- Anticipate barriers
- Problem solving
- Self-reporting
- Self-adjustment
- Rewards
- Stimulus control
- Social support

Theoretical Constructs

The HBM theoretical constructs originate from theories in Cognitive Psychology. In early twentieth century, cognitive theorists believed that reinforcements operated by affecting expectations rather than by affecting behavior straightly. Mental processes are severe constitutes of cognitive theories that are seen as expectancy-value models, because they propose that behavior is a function of the degree to which people value a result and their evaluation of the expectation, that a certain action will lead that result. In terms of the health-related behaviors, the value is avoiding sickness. The expectation is that a certain health action could prevent the condition for which people consider they might be at risk.

The following constructs of the HBM are proposed to vary between individuals and predict engagement in health-related behaviors.

Perceived susceptibility

Perceived susceptibility refers to subjective assessment of risk of developing a health problem. The HBM predicts that individuals who perceive that they are susceptible to a particular health problem will engage in behaviors to reduce their risk of developing the health problem. Individuals with low perceived susceptibility may deny that they are at risk for contracting a particular illness. Others may acknowledge the possibility that they could develop the illness, but believe it is unlikely. Individuals who believe they are at low risk of developing an illness are more likely to engage in unhealthy, or risky, behaviors. Individuals who perceive a high risk that they will be personally affected by a particular health problem are more likely to engage in behaviors to decrease their risk of developing the condition.

The combination of perceived severity and perceived susceptibility is referred to as perceived threat. Perceived severity and perceived susceptibility to a given health condition depend on knowledge about the condition. The HBM predicts that higher perceived threat leads to a higher likelihood of engagement in health-promoting behaviors.

Perceived severity

Perceived severity refers to the subjective assessment of the severity of a health problem and its potential consequences. The HBM proposes that individuals who perceive a given health problem as serious are more likely to engage in behaviors to prevent the health problem from occurring (or reduce its severity). Perceived seriousness encompasses beliefs about the disease itself (e.g., whether it is life-threatening or may cause disability or pain) as well as broader impacts of the disease on functioning in work and social roles. For instance, an individual may perceive that influenza is not medically serious, but if he or she perceives that there would be serious financial consequences as a result of being absent from work for several days, then he or she may perceive influenza to be a particularly serious condition.

Perceived benefits

Health-related behaviors are also influenced by the perceived benefits of taking action. Perceived benefits refer to an individual's assessment of the value or efficacy of engaging in a health-promoting behavior to decrease risk of disease. If an individual believes that a particular action will reduce susceptibility to a health problem or decrease its seriousness, then he or she is likely to engage in that behavior regardless of objective facts regarding the effectiveness of the action. For example, individuals who believe that wearing sunscreen prevents skin cancer are more likely to wear sunscreen than individuals who believe that wearing sunscreen will not prevent the occurrence of skin cancer.

Perceived barriers

Health-related behaviors are also a function of perceived barriers to taking action. Perceived barriers refer to an individual's assessment of the obstacles to behavior change. Even if an individual perceives a health condition as threatening and believes that a particular action will effectively reduce the threat, barriers may prevent engagement in the health-promoting behavior. In other words, the perceived benefits must outweigh the perceived barriers in order for behavior change to occur. Perceived barriers to taking action include the perceived inconvenience, expense, danger (e.g., side effects of a medical procedure) and discomfort (e.g., pain, emotional upset) involved in engaging in the behavior. For instance, lack of access to affordable health care and the perception that a flu vaccine shot will cause significant pain may act as barriers to receiving the flu vaccine. In a study about the breast and cervical cancer screening among Hispanic women, perceived barriers, like fear of cancer, embarrassment, fatalistic views of cancer and language, was proved to impede screening.

Modifying variables

Individual characteristics, including demographic, psychosocial, and structural variables, can affect perceptions (i.e., perceived seriousness, susceptibility, benefits, and barriers) of health-related behaviors. Demographic variables include age, sex, race, ethnicity, and education, among others. Psychosocial variables include personality, social class, and peer and reference group pressure, among others. Structural variables include knowledge about a given disease and prior contact with the disease, among other factors. The HBM suggests that modifying variables affect health-related behaviors indirectly by affecting perceived seriousness, susceptibility, benefits, and barriers.

3.10 CHANGING HEALTH BELIEFS

The Health Belief Model proposes that people are most likely to take preventative action if they perceive the threat of a health risk to be serious, if they feel they are personally susceptible and if there are fewer costs than benefits to engaging in it

The Health Belief Model (HBM) is a tool that scientists use to try and predict health

behaviors. It was originally developed in the 1950s, and updated in the 1980s. The model is

based on the theory that a person's willingness to change their health behaviors is primarily due to the following factors:

- **Perceived Susceptibility**
- People will not change their health behaviors unless they believe that they are at risk.
- Example: Those who does not think that they are at risk of acquiring HIV from unprotected intercourse are unlikely to use a condom. Young people who don't think they're at risk of lung cancer are unlikely to stop smoking.
- **Perceived Severity**
- The probability that a person will change his/her health behaviors to avoid a consequence depends on how serious he or she considers the consequence to be.
- Example: If you are young and in love, you are unlikely to avoid kissing your sweetheart on the mouth just because he has the sniffles, and you might get his cold. On the other hand, you probably would stop kissing if it might give you Ebola. Similarly, people are less likely to consider condoms when they think STDs are a minor inconvenience. That's why talk about safe sex increased during the AIDS epidemic. The perceived severity increased enormously.
- **Perceived Benefits**
- It's difficult to convince people to change a behavior if there isn't something in it for them. People don't want to give up something they enjoy if they don't also get something in return.
- Example: Your father probably won't stop smoking if he doesn't think that doing so will improve his life in some way. A couple might not choose to practice safe sex, if they don't see how it could make their sex life better.
- **Perceived Barriers**
- One of the major reasons people don't change their health behaviors is that they think that doing so is going to be hard. Sometimes it's not just a matter of physical difficulty, but social difficulty as well. Changing your health behaviors can cost effort, money, and time.
- Example: If everyone from your office goes out drinking on Fridays, it may be very difficult to cut down on your alcohol intake. If you think that condoms are a sign of distrust in a relationship, you may be hesitant to bring them up.

One of the best things about the Health Belief Model is how realistically it frames people's behaviors. It recognizes the fact that sometimes wanting to change a health behavior isn't enough to actually make someone do it. Therefore, it incorporates two more elements into its estimations about what it actually takes to get an individual to make the leap. These two elements are *cues to action* and *self efficacy*.

3.11 COGNITIVE –BEHAVIORAL APPROACHES

Cognitive behavioral therapy (CBT) is a short-term, goal-oriented psychotherapy treatment that takes a hands-on, practical approach to problem-solving. Its goal is to change patterns of thinking or behavior that are behind people's difficulties, and so change the way they feel.

Cognitive behavioral therapy (**CBT**) is a psycho-social intervention that aims to improve mental health. CBT focuses on challenging and changing unhelpful cognitive distortions (e.g. thoughts, beliefs, and attitudes) and behaviors, improving emotional regulation, and the development of personal coping strategies that target solving current problems. Originally, it was designed to treat depression, but its uses have been expanded to include treatment of a number of mental health conditions, includinganxiety. CBT includes a number of cognitive or behaviour psychotherapies that treat defined psychopathologies using evidence-based techniques and strategies.

CBT is based on the combination of the basic principles from behavioral and cognitive psychology. It is different from historical approaches to psychotherapy, such as the psychoanalytic approach where the therapist looks for the unconscious meaning behind the behaviors and then formulates a diagnosis. Instead, CBT is a "problem-focused" and "action-oriented" form of therapy, meaning it is used to treat specific problems related to a diagnosed mental disorder. The therapist's role is to assist the client in finding and practicing effective strategies to address the identified goals and decrease symptoms of the disorder. CBT is based on the belief that thought distortions and maladaptive behaviors play a role in the development and maintenance of psychological disorders, and that symptoms and associated distress can be reduced by teaching new information-processing skills and coping mechanisms.

When compared to psychoactive medications, review studies have found CBT alone to be as effective for treating less severe forms of depression and anxiety, posttraumatic stress disorder (PTSD), tics, substance abuse, eating disorders andborderline personality disorder. Some research suggests that CBT is most effective when combined with medication for treating mental disorders such as Major Depressive Disorder. In addition, CBT is recommended as the first line of treatment for the majority of psychological disorders in children and adolescents, including aggression and conduct disorder. Researchers have found that other *bona fide* therapeutic interventions were equally effective for treating certain conditions in adults. Along with interpersonal psychotherapy (IPT), CBT is recommended in treatment guidelines as a psychosocial treatment of choice, and CBT and IPT are the only psychosocial interventions that psychiatry residents in the United States are mandated to be trained in.

Cognitive distortions

Therapists or computer-based programs use CBT techniques to help people challenge their patterns and beliefs and replace errors in thinking, known as cognitive distortions, such as "overgeneralizing, magnifying negatives, minimizing positives and catastrophizing" with "more realistic and effective thoughts, thus decreasing emotional distress and self-defeating behavior".Cognitive distortions can be either a pseudo-discrimination belief or an over-generalization of something. CBT techniques may also be used to help individuals take a more open, mindful, and aware posture toward cognitive distortions so as to diminish their impact.

Skills

Mainstream CBT helps individuals replace "maladaptive... coping skills, cognitions, emotions and behaviors with more adaptive ones", by challenging an individual's way of thinking and the way that they react to certain habits or behaviors, but there is still controversy about the degree to which these traditional cognitive elements account for the effects seen with CBT over and above the earlier behavioral elements such as exposure and skills training.

Phases in therapy

CBT can be seen as having six phases:

1. Assessment or psychological assessment;
2. Reconceptualization;
3. Skills acquisition;
4. Skills consolidation and application training;
5. Generalization and maintenance;
6. Post-treatment assessment follow-up.

These steps are based on a system created by Kanfer and Saslow. After identifying the behaviors that need changing, whether they be in excess or deficit, and treatment has occurred, the psychologist must identify whether or not the intervention succeeded. For example, "If the goal was to decrease the behavior, then there should be a decrease relative to the baseline. If the critical behavior remains at or above the baseline, then the intervention has failed."

The steps in the assessment phase include:

Step 1: Identify critical behaviors

Step 2: Determine whether critical behaviors are excesses or deficits

Step 3: Evaluate critical behaviors for frequency, duration, or intensity (obtain a baseline)

Step 4: If excess, attempt to decrease frequency, duration, or intensity of behaviors; if deficits, attempt to increase behaviors.

The re-conceptualization phase makes up much of the "cognitive" portion of CBT. A summary of modern CBT approaches is given by Hofmann.

Cognitive therapy roots

One of the first therapists to address cognition in psychotherapy was Alfred Adler with his notion of basic mistakes and how

they contributed to creation of unhealthy or useless behavioral and life goals. Adler's work influenced the work of Albert Ellis, who developed the earliest cognitive-based psychotherapy, known today as rational emotive behavior therapy, or REBT.

Around the same time that rational emotive therapy, as it was known then, was being developed, Aaron T. Beck was conducting free association sessions in his psychoanalyticpractice. During these sessions, Beck noticed that thoughts were not as unconscious as Freud had previously theorized, and that certain types of thinking may be the culprits of emotional distress. It was from this hypothesis that Beck developed cognitive therapy, and called these thoughts "automatic thoughts". Beck has been referred to as "the father of cognitive behavioral therapy."

It was these two therapies, rational emotive therapy and cognitive therapy, that started the "second wave" of CBT, which was the emphasis on cognitive factors.

Behavior and cognitive therapies merge – "third wave" CBT

Although the early behavioral approaches were successful in many of the neurotic disorders, they had little success in treating depression. Behaviorism was also losing in popularity due to the so-called "cognitive revolution". The therapeutic approaches of Albert Ellis and Aaron T. Beck gained popularity among behavior therapists, despite the earlier behaviorist rejection of "mentalistic" concepts like thoughts and cognitions. Both of these systems included behavioral elements and interventions and primarily concentrated on problems in the present.

In initial studies, cognitive therapy was often contrasted with behavioral treatments to see which was most effective. During the 1980s and 1990s, cognitive and behavioral techniques were merged into cognitive behavioral therapy. Pivotal to this merging was the successful development of treatments for panic disorder by David M. Clark in the UK andDavid H. Barlow in the US.

Over time, cognitive behavior therapy became to be known not only as a therapy, but as an umbrella term for all cognitive-based psychotherapies. These therapies include, but are not limited to, rational emotive therapy (REBT), cognitive therapy, acceptance and commitment therapy, dialectical behavior therapy, reality therapy/choice theory,cognitive processing therapy, EMDR, and multimodal therapy.[141] All of these therapies are a blending of cognitive- and behavior-based elements.

This blending of theoretical and technical foundations from both behavior and cognitive therapies constituted the "third wave" of CBT. The most prominent therapies of this third wave are dialectical behavior therapy and acceptance and commitment therapy.

Despite increasing popularity of "third-wave" treatment approaches, reviews of studies reveal there may be no difference in the

effectiveness compared with "non-third wave" CBT for the treatment of depression.

Types of BCBT

Brief cognitive behavioral therapy (BCBT) is a form of CBT which has been developed for situations in which there are time constraints on the therapy sessions. BCBT takes place over a couple of sessions that can last up to 12 accumulated hours by design. This technique was first implemented and developed on soldiers overseas in active duty by David M. Rudd to prevent suicide.

Breakdown of treatment

1. Orientation
    1. Commitment to treatment
    2. Crisis response and safety planning
    3. Means restriction
    4. Survival kit
    5. Reasons for living card
    6. Model of suicidality
    7. Treatment journal
    8. Lessons learned
2. Skill focus
    1. Skill development worksheets
    2. Coping cards
    3. Demonstration
    4. Practice
    5. Skill refinement
3. Relapse prevention
    1. Skill generalization
    2. Skill refinement

Cognitive emotional behavioral therapy

Cognitive emotional behavioral therapy (CEBT) is a form of CBT developed initially for individuals with eating disorders but now used with a range of problems including anxiety,depression, obsessive compulsive disorder (OCD), post-traumatic stress disorder (PTSD) and anger problems. It combines aspects of CBT and dialectical behavioral therapy and aims to improve understanding and tolerance of emotions in order to facilitate the therapeutic process. It is frequently used as a "pretreatment" to prepare and better equip individuals for longer-term therapy.

Structured cognitive behavioral training

Structured cognitive behavioral training (SCBT) is a cognitive-based process with core philosophies that draw heavily from CBT. Like CBT,

SCBT asserts that behavior is inextricably related to beliefs, thoughts and emotions. SCBT also builds on core CBT philosophy by incorporating other well-known modalities in the fields of behavioral health andpsychology: most notably, Albert Ellis's rational emotive behavior therapy. SCBT differs from CBT in two distinct ways. First, SCBT is delivered in a highly regimented format. Second, SCBT is a predetermined and finite training process that becomes personalized by the input of the participant. SCBT is designed with the intention to bring a participant to a specific result in a specific period of time. SCBT has been used to challenge addictive behavior, particularly with substances such as tobacco, alcohol and food, and to manage diabetes and subdue stress and anxiety. SCBT has also been used in the field of criminal psychology in the effort to reduce recidivism.

Moral reconation therapy

Moral reconation therapy, a type of CBT used to help felons overcome antisocial personality disorder (ASPD), slightly decreases the risk of further offending. It is generally implemented in a group format because of the risk of offenders with ASPD being given one-on-one therapy reinforces narcissistic behavioral characteristics, and can be used in correctional or outpatient settings. Groups usually meet weekly for two to six months.

Stress inoculation training

This type of therapy uses a blend of cognitive, behavioral and some humanistic training techniques to target the stressors of the client. This usually is used to help clients better cope with their stress or anxiety after stressful events. This is a three-phase process that trains the client to use skills that they already have to better adapt to their current stressors. The first phase is an interview phase that includes psychological testing, client self-monitoring, and a variety of reading materials. This allows the therapist to individually tailor the training process to the client. Clients learn how to categorize problems into emotion-focused or problem-focused, so that they can better treat their negative situations. This phase ultimately prepares the client to eventually confront and reflect upon their current reactions to stressors, before looking at ways to change their reactions and emotions in relation to their stressors. The focus is conceptualization.

The second phase emphasizes the aspect of skills acquisition and rehearsal that continues from the earlier phase of conceptualization. The client is taught skills that help them cope with their stressors. These skills are then practised in the space of therapy. These skills involve self-regulation, problem-solving, interpersonal communication skills, etc.

The third and final phase is the application and following through of the skills learned in the training process. This gives the client opportunities to apply their learned skills to a wide range of stressors. Activities include role-playing, imagery, modeling, etc. In the end, the client will have been

trained on a preventive basis to inoculate personal, chronic, and future stressors by breaking down their stressors into problems they will address in long-term, short-term, and intermediate coping goals.

Activity-Guided CBT: Group-Knitting

A newly developed group therapy model based on Cognitive Behavioral Therapy (CBT) integrates knitting into the therapeutical process and has been proven to yield reliable and promising results. The foundation for this novel approach to CBT is the frequently emphasized notion that therapy success depends on the embeddedness of the therapy method in the patients' natural routine. Similar to standard group-based Cognitive Behavioural Therapy, patients meet once a week in a group of 10 to 15 patients and knit together under the instruction of a trained psychologist or mental health professional. Central for the therapy is the patient's imaginative ability to assign each part of the wool to a certain thought. During the therapy, the wool is carefully knitted, creating a knitted piece of any form. This therapeutical process teaches the patient to meaningfully align thought, by (physically) creating a coherent knitted piece. Moreover, since CBT emphasizes the behavior as a result of cognition, the knitting illustrates how thoughts (which are tried to be imaginary tight to the wool) materialize into the reality surrounding us.

Mindfulness-based cognitive behavioral hypnotherapy

Mindfulness-based cognitive behavioral hypnotherapy (MCBH) is a form of CBT focusing on awareness in reflective approach with addressing of subconscious tendencies. It is more the process that contains basically three phases that are used for achieving wanted goals.

Unified Protocol

The Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP) is a form of CBT, developed by David H. Barlow and researchers at Boston University, that can be applied to a range of depression and anxiety disorders. The rationale is that anxiety and depression disorders often occur together due to common underlying causes and can efficiently be treated together.

The UP includes a common set of components:

1. Psycho-education
2. Cognitive reappraisal
3. Emotion regulation
4. Changing behaviour

The UP has been shown to produce equivalent results to single-diagnosis protocols for specific disorders, such as OCD and social anxiety disorder. Several studies have shown that the UP is easier to disseminate as compared to single-diagnosis protocols.

3.12 TERMINOLOGIES

1. E-Health literacy 2. Developments 3. Behavior Change 4. Influencing 5. Strategies

3.13 MODEL QUESTIONS

1. Explain the E-Health literacy?
2. Discuss the Health Belief model?
3. Explain the factors influencing Health Behavior?
4. Explain the Behavior changes in Health psychology?
5. Discuss the Modification of Health Behavior?

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UNIT- IV BECOMING ILL AND GETTING MEDICAL TREATMENT

Structure

4.1 INTRODUCTION

Health service delivery systems that are safe, accessible, high quality, people-centred, and integrated are critical for moving towards universal health coverage. Service delivery systems are responsible for providing health services for patients, persons, families, communities and populations in general, and not only care for patients. While patient-centred care is commonly understood as focusing on the individual seeking care (the patient), people-centred care encompasses these clinical encounters and also includes attention to the health of people in their communities and their crucial role in shaping health policy and health services.

Service delivery systems should also consider the whole spectrum of care from promotion and prevention to diagnostic, rehabilitation and palliative care, as

well all levels of care including self-care, home care, community care, primary care, long-term care, hospital care, in order to provide integrated health services throughout the life course. WHO is supporting countries in moving towards universal health coverage through improving the efficiency and effectiveness of their health service delivery systems.

Meaning

Health care, health-care, or healthcare is the maintenance or improvement of health via the prevention, diagnosis, treatment, recovery, or cure of disease, illness, injury, and other physical and mental impairments in people. Health care is delivered by health professionals in allied health fields

4.2 PERCEIVING AND INTERPRETING SYSTEMS

Perception (from the Latin *perceptio*, meaning gathering or receiving) is the organization, identification, and interpretation of sensory information in order to represent and understand the presented information or environment.

All perception involves signals that go through the nervous system, which in turn result from physical or chemical stimulation of the sensory system. For example, vision involves light striking the retina of the eye; smell is mediated by odor molecules; and hearing involvespressure waves.

Perception is not only the passive receipt of these signals, but it's also shaped by the recipient's learning, memory, expectation, andattention. Sensory input is a process that transforms this low-level information to higher-level information (e.g., extracts shapes for object recognition). The process that follows connects a person's concepts and expectations (or knowledge), restorative and selective mechanisms (such as attention) that influence perception.

Perception depends on complex functions of the nervous system, but subjectively seems mostly effortless because this processing happens outside conscious awareness.

Since the rise of experimental psychology in the 19th century, psychology's understanding of perception has progressed by combining a variety of techniques. Psychophysics quantitatively describes the relationships between the physical qualities of the sensory input and perception. Sensory neuroscience studies the neural mechanisms underlying perception. Perceptual systems can also be studiedcomputationally, in terms of the information they process. Perceptual issues in philosophy include the extent to which sensory qualities such as sound, smell or color exist in objective reality rather than in the mind of the perceiver.

Although the senses were traditionally viewed as passive receptors, the study of illusions and ambiguous images has demonstrated that the brain's perceptual systems actively and pre-consciously attempt to make sense of their input. There is still active debate about the extent to which perception is an active process of hypothesis testing, analogous to science, or whether realistic sensory information is rich enough to make this process unnecessary.

The perceptual systems of the brain enable individuals to see the world around them as stable, even though the sensory information is typically incomplete and rapidly varying. Human and animal brains are structured in a modular way, with different areas processing different kinds of sensory information. Some of these modules take the form of sensory maps, mapping some aspect of the world across part of the brain's surface. These different modules are interconnected and influence each other. For instance, taste is strongly influenced by smell.

"**Percept**" is also a term used by Leibniz, Bergson, Deleuze, and Guattari to define perception independent from perceivers.

Meaning

Perception refers to the set of processes we use to make sense of the different stimuli we're presented with. Our perceptions are based on how we **interpret** different sensations. The perceptual process begins with receiving stimuli from the environment and ends with our **interpretation** of those stimuli.

4.3 BRUNER'S MODEL OF THE PERCEPTUAL PROCESS

Psychologist Jerome Bruner developed a model of perception, in which people put "together the information contained in" a target and a situation to form "perceptions of ourselves and others based on social categories." This model is composed of three states:

1. When we encounter an unfamiliar target, we are very open to the informational cues contained in the target and the situation surrounding it.
2. The first stage doesn't give us enough information on which to base perceptions of the target, so we will actively seek out cues to resolve this ambiguity. Gradually, we collect some familiar cues that enable us to make a rough categorization of the target. (see also Social Identity Theory)
3. The cues become less open and selective. We try to search for more cues that confirm the categorization of the target. We also actively ignore and even distort cues that violate our initial perceptions. Our perception becomes more selective and we finally paint a consistent picture of the target.

Saks & John's Three Components to Perception

According to Alan Saks and Gary Johns, there are three components to perception:

1. **The Perceiver**: a person whose awareness is focused on the stimulus, and thus begins to perceive it. There are many factors that may influence the perceptions of the perceiver, while the three major ones include (1) motivational state, (2) emotional state, and (3) experience. All of these factors, especially the first two, greatly contribute to how

the person perceives a situation. Oftentimes, the perceiver may employ what is called a "perceptual defense," where the person will only "see what they want to see"—i.e., they will only perceives what they want to perceive even though the stimulus acts on his or her senses.

2. **The Target**: the *object* of perception; something or someone who is being perceived. The amount of information gathered by the sensory organs of the perceiver affects the interpretation and understanding about the target.
3. **The Situation**: the *environmental* factors, timing, and degree of stimulation that affect the process of perception. These factors may render a single stimulus to be left as merely a stimulus, not a percept that is subject for brain interpretation.

Multistable Perception

Stimuli are not necessarily translated into a percept and rarely does a single stimulus translate into a percept. An ambiguous stimulus may sometimes be transduced into one or more percepts, experienced randomly, one at a time, in a process termed "*multistable perception*." The same stimuli, or absence of them, may result in different percepts depending on subject's culture and previous experiences.

Ambiguous figures demonstrate that a single stimulus can result in more than one percept. For example, the Rubin vase can be interpreted either as a vase or as two faces. The percept can bind sensations from multiple senses into a whole. A picture of a talking person on a television screen, for example, is bound to the sound of speech from speakers to form a percept of a talking person.

4.4 TYPES OF PERCEPTION

Vision

In many ways, vision is the primary human sense. Light is taken in through each eye and focused in a way which sorts it on the retina according to direction of origin. A dense surface of photosensitive cells, including rods, cones, and intrinsically photosensitive retinal ganglion cells captures information about the intensity, color, and position of incoming light. Some processing of texture and movement occurs within the neurons on the retina before the information is sent to the brain. In total, about 15 differing types of information are then forwarded to the brain proper via the optic nerve.

Sound

Hearing (or *audition*) is the ability to perceive sound by detecting vibrations (i.e., *sonic* detection). Frequencies capable of being heard by humans are called *audio* or *audible frequencies*, the range of which is typically considered to be between 20 Hz and 20,000 Hz. Frequencies higher than audio are referred to as *ultrasonic*, while frequencies below audio are referred to as *infrasonic*.

The auditory system includes the outer ears, which collect and filter sound waves; the middle ear, which transforms the sound pressure (impedance matching); and the inner ear, which produces neural signals in response to the sound. By the ascending auditory pathwaythese are led to the primary auditory cortex within the temporal lobe of the human brain, from where the auditory information then goes to the cerebral cortex for further processing.

Sound does not usually come from a single source: in real situations, sounds from multiple sources and directions are superimposed as they arrive at the ears. Hearing involves the computationally complex task of separating out sources of interest, identifying them and often estimating their distance and direction.

Touch

The process of recognizing objects through touch is known as *haptic perception*. It involves a combination of somatosensory perception of patterns on the skin surface (e.g., edges, curvature, and texture) and proprioception of hand position and conformation. People can rapidly and accurately identify three-dimensional objects by touch. This involves exploratory procedures, such as moving the fingers over the outer surface of the object or holding the entire object in the hand. Haptic perception relies on the forces experienced during touch.

Gibson defined the haptic system as "the sensibility of the individual to the world adjacent to his body by use of his body." Gibson and others emphasized the close link between body movement and haptic perception, where the latter is *active exploration.*

The concept of haptic perception is related to the concept of extended physiological proprioception according to which, when using a tool such as a stick, perceptual experience is transparently transferred to the end of the tool.

Taste

Taste (formally known as *gustation*) is the ability to perceive the flavor of substances, including, but not limited to, food. Humans receive tastes through sensory organs concentrated on the upper surface of the tongue, called *taste buds* or *gustatory calyculi*. The human tongue has 100 to 150 taste receptor cells on each of its roughly-ten thousand taste buds.

Traditionally, there have been four primary tastes: sweetness, bitterness, sourness, and saltiness. However, the recognition and awareness of umami, which is considered the fifth primary taste, is a relatively recent development in Western cuisine. Other tastes can be mimicked by combining these basic tastes, all of which contribute only partially to the sensation and flavor of food in the mouth. Other factors include smell, which is detected by the olfactory epithelium of the nose; texture, which is detected through a variety of mechanoreceptors, muscle nerves, etc.; and temperature, which is detected by thermoreceptors. All basic tastes are classified as either *appetitive* or *aversive*, depending upon whether the things they sense are harmful or beneficial.

Smell

Smell is the process of absorbing molecules through olfactory organs, which are absorbed by humans through the nose. These molecules diffuse through a thick layer of mucus; come into contact with one of thousands of cilia that are projected from sensory neurons; and are then absorbed into a receptor (one of 347 or so). It is this process that causes humans to understand the concept of smell from a physical standpoint.

Smell is also a very interactive sense as scientists have begun to observe that olfaction comes into contact with the other sense in unexpected ways. It is also the most primal of the senses, as it is known to be the first indicator of safety or danger, therefore being the sense that drives the most basic of human survival skills. As such, it can be a catalyst for human behavior on a subconscious and instinctive level.

Social

Social perception is the part of perception that allows people to understand the individuals and groups of their social world. Thus, it is an element of social cognition.

Speech

Speech perception is the process by which spoken language is heard, interpreted and understood. Research in this field seeks to understand how human listeners recognize the sound of speech (or *phonetics*) and use such information to understand spoken language.

Listeners manage to perceive words across a wide range of conditions, as the sound of a word can vary widely according to words that surround it and the tempo of the speech, as well as the physical characteristics, accent, tone, and mood of the speaker. Reverberation, signifying the persistence of sound after the sound is produced, can also have a considerable impact on perception. Experiments have shown that people automatically compensate for this effect when hearing speech.

The process of perceiving speech begins at the level of the sound within the auditory signal and the process of audition. The initial auditory signal is compared with visual information—primarily lip movement—to extract acoustic cues and phonetic information. It is possible other sensory modalities are integrated at this stage as well. This speech information can then be used for higher-level language processes, such as word recognition.

Speech perception is not necessarily uni-directional. Higher-level language processes connected with morphology, syntax, and/or semantics may also interact with basic speech perception processes to aid in recognition of speech sounds. It may be the case that it is not necessary (maybe not even possible) for a listener to recognize phonemes before recognizing higher units, such as words. In an experiment, Richard M. Warren replaced one phoneme of a word with a cough-like sound. His subjects restored the missing speech sound

perceptually without any difficulty. Moreover, they were not able to accurately identify which phoneme had even been disturbed.

Faces

Facial perception refers to cognitive processes specialized in handling human faces (including perceiving the identity of an individual) and facial expressions (such as emotional cues.)

Social touch

The *somatosensory cortex* is a part of the brain that receives and encodes sensory information from receptors of the entire body.

Affective touch is a type of sensory information that elicits an emotional reaction and is usually social in nature. Such information is actually coded differently than other sensory information. Though the intensity of affective touch is still encoded in the primary somatosensory cortex, the feeling of pleasantness associated with affective touch is activated more in the anterior cingulate cortex. Increased blood oxygen level-dependent (BOLD) contrast imaging, identified during functional magnetic resonance imaging (fMRI), shows that signals in the anterior cingulate cortex, as well as the prefrontal cortex, are highly correlated with pleasantness scores of affective touch. Inhibitory transcranial magnetic stimulation (TMS) of the primary somatosensory cortex inhibits the perception of affective touch intensity, but not affective touch pleasantness. Therefore, the S1 is not directly involved in processing socially affective touch pleasantness, but still plays a role in discriminating touch location and intensity.

Multi-Modal Perception

Multi-modal perception refers to concurrent stimulation in more than one sensory modality and the effect such has on the perception of events and objects in the world.

Time (Chronoception)

Chronoception refers to how the passage of time is perceived and experienced. Although the sense of time is not associated with a specific sensory system, the work ofpsychologists and neuroscientists indicates that human brains do have a system governing the perception of time, composed of a highly distributed system involving thecerebral cortex, cerebellum, and basal ganglia. One particular component of the brain, the suprachiasmatic nucleus, is responsible for the circadian rhythm (commonly known as one's "internal clock"), while other cell clusters appear to be capable of shorter-range timekeeping, known as an *ultradian rhythm*.

One or more dopaminergic pathways in the central nervous system appear to have a strong modulatory influence on mental chronometry, particularly interval timing.[43]

Agency

Sense of agency refers to the subjective feeling of having chosen a particular action. Some conditions, such as schizophrenia, can cause a loss of this sense,

which may lead a person into delusions, such as feeling like a machine or like an outside source is controlling them. An opposite extreme can also occur, where people experience everything in their environment as though they had decided that it would happen.

Even in non-pathological cases, there is a measurable difference between the making of a decision and the feeling of agency. Through methods such as the Libet experiment, a gap of half a second or more can be detected from the time when there are detectable neurological signs of a decision having been made to the time when the subject actually becomes conscious of the decision.

There are also experiments in which an illusion of agency is induced in psychologically normal subjects. In 1999, psychologists Wegner and Wheatley gave subjects instructions to move a mouse around a scene and point to an image about once every thirty seconds. However, a second person—acting as a test subject but actually a confederate—had their hand on the mouse at the same time, and controlled some of the movement. Experimenters were able to arrange for subjects to perceive certain "forced stops" as if they were their own choice.

Familiarity

Recognition memory is sometimes divided into two functions by neuroscientists: *familiarity* and *recollection*. A strong sense of familiarity can occur without any recollection, for example in cases of deja vu.

The temporal lobe (specifically the perirhinal cortex) responds differently to stimuli that feel novel compared to stimuli that feel familiar. Firing rates in the perirhinal cortex are connected with the sense of familiarity in humans and other mammals. In tests, stimulating this area at 10–15 Hz caused animals to treat even novel images as familiar, and stimulation at 30–40 Hz caused novel images to be partially treated as familiar. In particular, stimulation at 30–40 Hz led to animals looking at a familiar image for longer periods, as they would for an unfamiliar one, though it did not lead to the same exploration behavior normally associated with novelty.

Recent studies on lesions in the area concluded that rats with a damaged perirhinal cortex were still more interested in exploring when novel objects were present, but seemed unable to tell novel objects from familiar ones—they examined both equally. Thus, other brain regions are involved with noticing unfamiliarity, while the perirhinal cortex is needed to associate the feeling with a specific source.

Sexual stimulation

Sexual stimulation is any stimulus (including bodily contact) that leads to, enhances, and maintains sexual arousal, possibly even leading to orgasm. Distinct from the general sense of touch, sexual stimulation is strongly tied to hormonal activity and chemical triggers in the body. Although sexual arousal may arise without physical stimulation, achieving orgasm usually requires physical sexual stimulation (stimulation of the Krause-Finger corpuscles found in erogenous zones of the body.)

4.5 INTERPRETING SYSTEM

Health Care Interpretation promotes effective communication between limited-English proficient and Deaf and Hard of Hearing patients and health care providers. Because of the growing number of LEP patients in the United States, the demand for qualified health care interpreters has grown swiftly

What happens when a patient doesn't speak English?

When there is a language barrier in a health care setting, clinicians providing quality healthcare services need help eliminating the language barrier from a certified medical interpreter. Qualified health care interpreters are trained in specific medical terminology, medical systems and cultural awareness. Health care interpreters are a valued part of the healthcare community. Like health care providers, professional interpreters work provide critical language access that saves lives and protects patients' health and well-being.

Health Care Interpretation and Patient Communication

Working with health care interpreters is appropriate in any health care setting, including hospitals, clinics, private practice, urgent care, rehabilitation centers, nursing homes, home health care, etc.

Health care interpreters are a vital asset for every patient communication from routine medical appointments to laboratory and hospital procedures. Here are a few situations where professional health care interpretation facilitates communication:

- Taking a medical history
- Giving a diagnosis
- Performing medical procedures
- Understanding treatments and prescriptions
- Understanding discharge and follow up instructions
- Admission to ER or urgent care
- Initial medical consultations
- Physical checkups
- Surgery
- Informed consent

How to Work With Health Care Interpreters

There are 3 main methods of interpreting that clinicians can use to access qualified medical interpreters: On-Site (or face-to-face) interpreting, Video Remote Interpreting (VRI), and Telephonic (or over-the-phone interpreting).

On-Site Interpretation

On-site interpretation services continue to be high-demand for medical settings and promote the highest level of accuracy in interpreting. Here are a few situations that are appropriate for in-person interpretation:

- Lengthy appointments or appointments planned in advance
- When a conversation will be complex or time-consuming
- When the subject matter is of a sensitive nature
- When many patient appointments are scheduled close together
- When the patient prefers to have an interpreter physically present
- When the patient is a child as language skills may be underdeveloped

A dedicated language services provider should be able to schedule appointments for health care interpretation as needed. Sometimes unexpected language barriers come up and it’s important that your LSP be able to fulfill these requests timely. Telelanguage has the ability to have a certified medical interpreter at your location in as little as 30 minutes.

Video Remote Interpreting

Video Remote Interpreting, or VRI, is the fastest-growing foreign language service in the country. An on-demand interpretation solution, VRI bridges the gap between telephonic interpreting and on-site interpreting. Benefits of Video Remote Interpreting include:

- Gain visual support with enhanced accuracy
- See facial expressions of the interpreter and know they understood
- Confirm the meaning of non-verbal communication
- Help the conversation for you, the interpreter and the LEP patient
- Cost-effective. There are no minimum hours or mileage reimbursement needed to gain access to the interpreter.
- On-demand access

VRI promotes the highest level of accuracy in interpreting, second only to on-site interpreting. Telelanguage provides HIPAA, HITECH and ADA compliant VRI services that can be accessed in seconds, available 24/7, 365 days a year – with assembly from any office or field site.

Telephonic Interpretation

Telephonic interpretation is an on-demand, remote interpreting service that offers a fast response when urgent or unexpected language barriers comes up. Telephone interpreting bridges the language gap in areas where on-site interpreters cannot, such as an emergency situation that requires a fast response, or in a rural area where a local interpreter cannot be immediately available.

Telelanguage knows that in an emergency situation, seconds matter. Telelanguage connects health care professionals to trained, U.S. based health care interpreters in over 300 languages – faster than any other vendor (Average Connect Time: 7 Seconds). Our proprietary technology also ensures that there are no outages in the event of a national emergency.

Patient Experience and Professional Health Care Interpretation

Patient care inevitably suffers when there is not adequate communication. Studies show that if language barriers between doctors and patients are not conquered, misdiagnosis and inappropriate treatment are far more likely to occur. Studies from Health Services Research have found the use of a qualified medical interpreter to have a positive impact on patient care. "Use of professional interpreters is associated with improved clinical care more than is use of ad hoc interpreters, and professional interpreters appear to raise the quality of clinical care for LEP patients to approach or equal that for patients without language barriers." Utilizing a qualified medical interpreter has been associated with:

- Higher quality of clinical care
- Improved care
- Higher levels of patient satisfaction
- Fewer communication errors
- A greater comprehension of diagnoses and follow up care instructions
- Lower rates of readmission

Research suggests that Limited-English Proficient (LEP) patients are more likely than English-speaking patients to experience safety events caused by communication errors. The root causes of patient safety events for LEP patients are related to communication and lack of use of qualified medical interpreters.

The cost of professional health care interpretation is significantly less than the negative impact of inadequate communication. Professional health care interpreters are trained to handle interpreting in clinical settings.

In addition to clear interpretation with fewer errors, interpretation performed by trained interpreters are associated with improved comprehension, greater patient satisfaction, better care, compliance, and lower readmission rates.

Medical appointments can be stressful for anyone, and significantly more stressful for a patient with whom there is a language barrier. Using qualified medical interpreters reduces patient stress for LEP patients, and can make the experience less intimidating. It is crucial that LEP patients are able to converse with medical professionals in the language they are familiar with. A dedicated healthcare language services provider will be able to help your facility communicate effectively in any medical situation.

Telelanguage Health Care Interpretation

At Telelanguage, over 70% of our current client base are healthcare entities. We work with health care organizations to improve your language support services while reducing your interpretation costs, and increasing patient satisfaction. Every organization has unique needs. That's why we tailor our service to your exact requirements. We are committed to providing the best medically trained health care interpreters to improve language access programs across the country. Telelanguage has been a trusted name in healthcare language services since 1991. As a top provider of medical interpretation and translation services, we believe that all health care organizations should have affordable access to the best-qualified language support.

Grouping (Gestalt)

The *principles of grouping* (or *Gestalt laws of grouping*) are a set of principles in psychology, first proposed by Gestalt psychologists, to explain how humans naturally perceive objects as organized patterns and objects. Gestalt psychologists argued that these principles exist because the mind has an innate disposition to perceive patterns in the stimulus based on certain rules. These principles are organized into six categories:

1. **Proximity**: the principle of *proximity* states that, all else being equal, perception tends to group stimuli that are close together as part of the same object, and stimuli that are far apart as two separate objects.
2. **Similarity**: the principle of *similarity* states that, all else being equal, perception lends itself to seeing stimuli that physically resemble each other as part of the same object and that are different as part of a separate object. This allows for people to distinguish between adjacent and overlapping objects based on their visual texture and resemblance.
3. **Closure**: the principle of *closure* refers to the mind's tendency to see complete figures or forms even if a picture is incomplete, partially hidden by other objects, or if part of the information needed to make a complete picture in our minds is missing. For example, if part of a shape's border is missing people still tend to see the shape as completely enclosed by the border and ignore the gaps.
4. **Good Continuation:** the principle of *good continuation* makes sense of stimuli that overlap: when there is an intersection between two or more objects, people tend to perceive each as a single uninterrupted object.
5. **Common Fate**: the principle of *common fate* groups stimuli together on the basis of their movement. When visual elements are seen moving in the same direction at the same rate, perception associates the movement as part of the same stimulus. This allows people to make out moving objects even when other details, such as color or outline, are obscured.
6. The principle of *good form* refers to the tendency to group together forms of similar shape, pattern, color, etc.

4.6 USING AND MISUSING HEALTH SERVICES

Patient-practitioner relationship

The hospital

"I was astounded when four technicians from four different departments took four separate and substantial blood samples on the same day. That the hospital didn't take the trouble to coordinate the tests, using one blood specimen, seemed to me inexplicable and irresponsible. When the technicians came the second day to fill their containers with blood for processing in separate laboratories, I turned them away and had a sign posted on my door saying that I would give just one specimen every three days and that I expected the different departments to draw from it for their individual needs."

History

- Until 20th century, hospitals had well-deserved bad reputation for miserable care, ministering exclusively to poor, who often died of infections they didn't have when they entered.
- Middle and upper classes treated at home
- End of 19th century, revolution in medicine
- In 1873, 178 hospitals in US, in 1909, over 4300, 7X the population growth
- Hospitals gained reputation for good care, treated all classes
- 1995, about 31 million people treated as inpatients
- Infections still problem, about 5% (2 million) will contract nosocomial (hospital) infections, of which at least 15,000 die
    - Data show physicians less likely to follow sterile procedures and Infection Control Nurse less likely to challenge physician (see Patients fight back against the superbugs)
- Since 1980, marked decrease in number of admits/discharges and in length of stay (Fig 10-1, p 305, Sarafino)
    - More outpatient procedures (day surgery, single day tests)
    - More efficient procedures (microscopic orthopaedic surgery, laparoscopy, better and faster diagnostic tests)
    - Patients released at earlier point in recovery
    - Many changes due to changes in health care financing -- Managed care, DRGs

Hospital patient role

- **Nonperson treatment – depersonalization (Goffman, 1961)**

"Recently when I was being given emergency treatment for an eye laceration, the resident surgeon abruptly terminated his conversation with me as soon as I lay down on the operating table. Although I had no sedative

or anaesthesia, he acted as if I was no longer conscious, directing all his questions to a friend of mine – What's his name? What's his occupation? .. As I lay there, these two men were speaking about me as if I was not there at all. The moment I got off the table and was no longer a cut to be stitched, the surgeon resumed his conversation with me, and existence was conferred on me again."

Hip fracture in 202B

- Comments ignored, not wanted or solicited
- Not spoken to directly, conversations occur as if not present
- Expected to cooperate, to be passive
- Emotional needs often not assessed, noticed or met
- **Reasons for depersonalisation**
- Hectic, unpredictable days, often with risks (contagion, exposure to dangerous chemicals)
- Protection from emotional pain when patients die or get worse
- Under high, prolonged stress burnout
- Emotional exhaustion
- Depersonalisation
- Feelings of professional inadequacy
- Maslach & Jackson reported among health practitioners about equal exhaustion, nurses showed less depersonalization, physicians less inadequacy

Lack of information

- Patients often do not possess critical knowledge of diagnosis, tests, procedures, treatments, prognosis
- Lack of knowledge often leads to anxiety and stress
- Part of problem, poor communication, non-reciprocal communication
- Physicians may inform only partially, indirectly or with jargon, often in attempt to protect patient form alarm or misunderstanding (McKinlay, 1975)
- Without direct communication, patients may seek alternate info sources (look at chart, ask other patients)
- Information may be misleading or not fully understood

Loss of control

- Loss of normal control over body (when, how, what to eat, when, how to toilet, dressing, what to wear, what medicines you put into your body)
- Loss of control over activities (recreation, leisure, work)
- Loss of control over future – predict what will happen
    - Problems associated with loss of control
        - Stressful
        - Increased discomfort
        - Heightened physiological responses

- Patients may respond with **reactance** (Brehm, 1966) bad patients
  - Petty acts of mutiny (drinking/smoking in room, off diet foods, not taking medicines)
  - Angry, complaining, questioning (which may indeed be good)
  - Attempts to re-establish control, however, maybe self-defeating (noncompliance)

Good patients

- Patient, passive, compliant, noncomplaining
- May be disguised learned helplessness secondary to perceived loss of control
- Learned helplessness also may lead to depression immunosuppression
- Also may be passive-aggressive – way to get even by withholding info, making less effort to help

4.7 PATIENT-PRACTITIONER RELATIONSHIP

A **patient** is any recipient of health care services performed by healthcare professionals. The patient is most often ill or injured and in need of treatment by a physician, nurse,psychologist, dentist, veterinarian, or other health care provider.

Outpatients and inpatients

Receptionist attending to an outpatient

An **outpatient** (or **out-patient**) is a patient who is hospitalized for less than 24 hours. Even if the patient will not be formally admitted with a note as an outpatient, they are still registered, and the provider will usually give a note explaining the reason for the service, procedure, scan, or surgery, which should include the names and titles and IDs of the participating personnel, the patient's name and date of birth and ID and signature of informed consent, estimated pre- and post-service time for a history and exam (before and after), any anesthesia or medications needed, and estimated time of discharge absent any (further) complications. Treatment provided in this fashion is calledambulatory care. Sometimes surgery is performed without the need for a formal hospital admission or an overnight stay. This is calledoutpatient surgery. Outpatient surgery has many benefits, including reducing the amount of medication prescribed and using the physician's or surgeon's time more efficiently. More procedures being performed in a surgeon's office, termed *office-based surgery*, rather than in a hospital-based operating room. Outpatient surgery is suited best for healthy patients undergoing minor or

intermediate procedures (limited urologic, ophthalmologic, or ear, nose, and throat procedures and procedures involving the extremities).

An **inpatient** (or **in-patient**), on the other hand, is "admitted" to the hospital and stays overnight or for an indeterminate time, usually, several days or weeks, though in some extreme cases, such as with coma or persistent vegetative state, patients can stay in hospitals for years, sometimes until death. Treatment provided in this fashion is calledinpatient care. The admission to the hospital involves the production of an admission note. The leaving of the hospital is officially termed *discharge*, and involves a correspondingdischarge note.

Misdiagnosis is the leading cause of medical error in outpatient facilities. When the U.S. Institute of Medicine's groundbreaking 1999 report, *To Err Is Human*, found up to 98,000 hospital patients die from preventable medical errors in the U.S. each year, early efforts focused on inpatient safety. While patient safety efforts have focused on inpatient hospital settings for more than a decade, medical errors are even more likely to happen in a doctor's office or outpatient clinic or center.

Day patient

A **day patient** or (**day-patient**) is a patient who is using the full range of services of a hospital or clinic but is not expected to stay the night. The term was originally used by psychiatric hospital services using of this patient type to care for people needing support to make the transition from in-patient to out-patient care. However, the term is now also heavily used for people attending hospitals for day surgery.

Doctor-patient relationship

The doctor-patient relationship has sometimes been characterized as silencing the voice of patients. It is now widely agreed that putting patients at the centre of healthcareby trying to provide a consistent, informative and respectful service to patients will improve both outcomes and patient satisfaction.

When patients are not at the centre of healthcare, when institutional procedures and targets eclipse local concerns, then patient neglect is possible. Incidents in the UK, such as the Stafford Hospital scandal and the Winterbourne View hospital abuse scandal, have shown the dangers of ignoring patient concerns. Investigations into these and other similar scandals have recommended that the health service put patient experience at the heart of what it does, and especially that patients themselves are heard loud and clear within the health services.

There are many reasons for why health services should listen more to patients. Patients spend more time in healthcare services than regulators or quality controllers, and can recognize problems such as service delays, poor hygiene, and poor conduct. Patients are particularly good at identifying soft problems, such as attitudes, communication, and 'caring neglect', that are difficult to capture with institutional monitoring.

One important way in which patients can be placed at the centre of healthcare is for health services to be more open about patient complaints. Each year

many hundreds of thousands of patients complain about the care they have received, and these complaints contain valuable information for any health services which want to learn about and improve patient experience

doctor-patient relationship

The importance of patient engagement and a strong doctor-patient relationship has recently become a growing topic among healthcare providers. As research on the subject has begun indicating that there may be better outcomes when a patient is actively involved in their healthcare, it has also prompted a controversial discussion on the matter as well. A growing body of evidence demonstrates that patients who are more actively involved in their healthcare experience better health outcomes and incur lower costs. As a result, many public and private healthcare organizations are employing strategies to better engage patients, such as educating them about their conditions and involving them more fully in making decisions about their care.[1]

Research has been collected on the topic to verify if there are better outcomes when patients are actively involved in their healthcare. According to a study published in the journal Health Services Research, the relationship between a physician and their patient is the key to high patient engagement. After researching over 8,000 Americans with chronic illnesses, experts found that there were three factors that had a huge impact on a patient's engagement levels. These included:

- The quality of the patient-physician relationship—especially how well the doctor communicates in the office
- The amount of respect and fairness patients felt they received
- The frequency of patient-physician communication outside of the office (through email or phone)

The research found interesting results. Patient communication was one of the most critical elements of success: for every one unit increase in the quality of interpersonal exchanges, patients reported a 10 unit increase in their overall engagement levels.[2] New Surface Sensor Technology has been designed to help foster doctor-patient communication without needing unnecessary, in-person appointments while simultaneously improving the relationship between physician and patient.

TracPatch, a two-piece device that adheres to a patient's leg above and below the knee following total knee surgery, was created to continuously collect activity data including range of motion (ROM), exercise compliance, pain scores, PROM survey submissions, and ambulation, through a centralized patient app. The data is then sent to the cloud and shared with the patient's healthcare provider through the healthcare provider app and web portal.

TracPatch allows healthcare providers to review a patient's progress remotely and then send exercise reminders and make changes to individual recovery

plans based on how the individual is progressing. The technology was created to help foster an enhanced doctor-patient relationship as it gives physicians the ability to monitor their patients no matter where they are located and patients the opportunity to communicate with their physician whenever necessary, without an in-person appointment. It's reassuring to know that TracPatch has already begun helping patients take an active role in their recovery process.

4.8 DYNAMICS OF DOCTOR-PATIENT RELATIONSHIPS

Nature of mental health issues

Doctor–patient relationship varies depending on the type of mental illness and patients' understanding of their problems. Patients with depressive or anxiety disorder are more likely to approach with positive attitudes toward in comparison to those with psychotic symptoms. Similarly, persons with histrionic personality may exaggerate their mental illness, whereas paranoid and schizoid personalities tend to avoid or do not seek help. The internalized stigma associated with mental illness can sometimes be discouraging to seek help from mental health professionals

Clinical settings

Patients can lose the trust with doctors that was developed in the outpatient clinic if patients are admitted against consent or if forceful admission is done. Patients can feel humiliated with forced admission. Furthermore, older doctors are considered experienced and generally viewed with high regards. Similarly, the clinical set-up, for example, how the outpatients' chairs are set, whether enough opportunity is there for the patients to speak and feel listened to, will also impact on the relationship. However, if chairs are set up at the same level to sit, it gives the sense of a collaborative relationship. However, it would feel paternalistic if the doctors have big cushion and special chairs compared to those provided for the client.

Doctors' attitudes

The differing attitudes and beliefs from the different cultural background of the doctor and patient also affect the interaction. Good quality communication with patients enhances bond, promotes healing, and reduces the chances of getting involved in judicial litigation in unfortunate circumstances. Doctors working in a highly challenging environment may experience burnout, and this again affects their way of practice and relationship with clients. Showing non-judgmental, collaborative approach, and providing realistic outcome goals help in improving the doctor–patient relationship.

Rural versus urban health care

In rural areas, poor information regarding their illness, lack of resources to gather information, and poor health literacy can prevent accessing the existing limited health care, and the issue of access to care and availability of

practitioners becomes priority than the issue of likes or dislikes toward doctors. Availability of many specialists in some urban areas in India could make a few patients decide to try with a new specialist, thus reducing opportunity to develop working relationship and could become a source of dissatisfaction for doctors also.

Commercial aspects

Psychiatrists provide care to all irrespective of caste, creed, religion, or financial status. However, some doctors practice in bigger hospitals more accessible to affordable class, and other physicians working in the public sector cater to poorer persons. It is likely that quality of care may differ depending on affordability, and individual experiences of relationship may vary. Unethical, corrupt practices, without providing much information about the illness and treatment options, have generally troubled the relationship in recent times.

Attitudes of carers toward mental illness

In the Indian context, the decision of the family or more particularly the supposed head of the family can influence whether needy patients with mental illness access the care. Even though the doctor–patient relationship may have been established, the caregivers' opinion toward certain mental illness may become a barrier to the provision of treatment. This happens possibly due to cultural beliefs or stigma, especially during the maintenance phase of treatment, and eventually leads to non-compliance to medications, relapse, and a poorer outcome. However, after coming to know about their fallacies, the family members, though they understand the need to seek consultation, may feel embarrassed, causing a further barrier to the relationship. Some carers attribute mental illness to magic or religious reasons, affecting adherence to treatment.

Transference and countertransference

The understanding of clients and therapists of each other, based on their own set of feelings or attitudes, depends on their past experiences. These reactions, especially from the therapists, or the countertransference, can hinder the evaluation of the client due to the doctor not being able to understand the client further but has own presumption or prejudice that could derail the relationship. To develop a therapeutic relationship, trainee psychotherapists learn to deal with countertransference. However, these days, due to a busy schedule and limited time and resources, it is becoming hard for doctors to understand the client. This can have some serious consequences as the patient may think doctors do not understand them, and this may also be a reason for lawsuits against doctors.

Doctor as healer and placebo effect

It is known that patients' emotions and cognitions about a treatment or therapist impact the therapeutic outcomes. The term placebo in Latin means "I shall please." During the visit to a hospital, while interacting with the doctor, several social and sensory stimuli, along with the patient's personal beliefs, old memories of having experienced the care, or hearsay, including anticipation, contribute to the patient experiencing something more than just the treatment offered. Similarly, there is a term called nocebo (in Latin, meaning "I shall harm"), which can have negative consequences due to negative beliefs and attitudes. One example of nocebo effect could be when a person having fear of developing side effects of nausea, vomiting with medications can develop nausea on taking antiemetic drugs without knowledge. Trust by the patient on the physician has multidimensional aspects and depends on competency, compassion, privacy, confidentiality, reliability, dependability, and communication. Thus, aspects of care in the form of compassion, support, empathy, and communication may all help in a better outcome.

Therapeutic relationship

Therapeutic interpersonal relationships are a primary component of all health care interactions that facilitate positive clinician–patient experiences. Consequently, with an increasing patient-centered care approach, it is imperative for health care professionals to therapeutically engage with patients to improve health-related outcomes. Carl Rogers's client-centered theory describes empathy, genuineness, unconditional regard, respect, and warmth as crucial elements for good therapeutic efficacy. In a study by Sutherland *et al.*, 63% of patients with cancer expressed that the physician should take the primary responsibility in decision-making, 27% felt it should be equal, and 10% wanted they themselves should take a major role. In another study, patient satisfaction was associated with the doctor's emotional response, including non-verbal communication, showing more interest, and making eye contact. Some of the "positive psychiatry" approach that are routinely practiced are creation of optimism, setting goals, encouraging the patient to modify their lifestyle, non-biased approach, and a non-judgmental approach incorporated in empathic interviewing. These types of approaches help in recovery, patient satisfaction, and adherence to treatment. The therapeutic alliance is not only dependent on an agreement over goals and tasks involved in treatment but also on the personal bond between the doctor and the patient. McCabe *et al.* found that improved therapeutic relationship enhances medication adherence in patients with schizophrenia, thus playing a role in improved outcomes, reduced dropouts, and less number of hospital admissions.

Changes needed in interviewing Skills

The art of interviewing involves rapport building. Rapport establishment may not occur in the first visit, and therefore, the patient may not engage. Decision-making, after gathering evidence to rule out risks, to ascertain the need to

comply with MHCA 2017, becomes a priority, and therefore collateral information will be sought. A patient experiencing persecutory ideas may question the doctor's intention, then the doctor would find it difficult to justify and convince the patient. This poor rapport may delay commencement of treatment because then, one has to wait until the patient is deemed to be incapacitous to receive treatment and also the clause of a risk of harm to others or self has to be satisfied. This is when relevant section 89 or emergency section 94 can be applied. Applying these sections will further worsen the rapport building, and overall, the doctor–patient relationship may get hampered, which later have to be rebuilt. MHCA 2017 seems to have ignored the rapport building part, which is a basic need for developing trust for favorable treatment outcomes. There cannot be paternalistic kind of interviewing, but more interactive type, but in the end, psychiatrists are expected to provide options of care available. Despite contrasting views by the family members, more weightage has to be given to the views of the patient, except in situations where evidence of an increasing risk of danger to self or others is established. Even when the patient is deemed to be incapacitous, to decide about treatment, the psychiatrist has to find the least restrictive approach. Interviews will have to be directed toward providing information in the way the person can understand. Furthermore, the doctor will have to focus on gathering evidence to ascertain the magnitude of risk of harm to self or others.

4.9 ADHERING TO MEDICAL ADVICE

In medicine, compliance (synonymous with adherence, capacitance) describes the degree to which a patient correctly follows medical advice. Most commonly, it refers to medication or drug compliance, but it can also apply to medical device use, self care, self-directed exercises, or therapy sessions.

In medicine, patient compliance (also adherence, capacitance) describes the degree to which a patient correctly follows medical advice. Most commonly, it refers to medication or drug compliance, but it can also apply to other situations such as medical device use, self care, self-directed exercises, or therapy sessions. Both patient and health-care provider affect compliance, and a positive physician-patient relationship is the most important factor in improving compliance, The cost of prescription medication also plays a major role.

Compliance can be confused with **concordance**, which is the process by which a patient and clinician make decisions together about treatment.

Worldwide, non-compliance is a major obstacle to the effective delivery of health care. 2003 estimates from the World Health Organization indicated that only about 50% of patients with chronic diseases living in developed countries follow treatment recommendations with particularly low rates of adherence to therapies for asthma, diabetes, andhypertension. Major barriers to compliance are thought to include the complexity of modern medication

regimens, poor "health literacy" and not understanding treatment benefits, occurrence of undiscussed side effects, poor treatment satisfaction, cost of prescription medicine, and poor communication or lack of trust between a patient and his or her health-care provider. Efforts to improve compliance have been aimed at simplifying medication packaging, providing effective medication reminders, improving patient education, and limiting the number of medications prescribed simultaneously. Studies show a great variation in terms of characteristics and effects of interventions to improve medicine adherence. It is still unclear how adherence can consistently be improved in order to promote clinically important effects.

Health literacy

Cost and poor understanding of the directions for the treatment, referred to as 'health literacy' have been known to be major barriers to treatment adherence. There is robust evidence that education and physical health are correlated. Poor educational attainment is a key factor in the cycle of health inequalities.

Educational qualifications help to determine an individual's position in the labour market, their level of income and therefore their access to resources.

Literacy

In 1999 one fifth of UK adults, nearly seven million people, had problems with basic skills, especially functional literacy and functional numeracy, described as: "The ability to read, write and speak in English, and to use mathematics at a level necessary to function at work and in society in general." This made it impossible for them to effectively take medication, read labels, follow drug regimes, and find out more.

In 2003, 20% of adults in the UK had a long-standing illness or disability and a national study for the UK Department of Health, found more than one-third of people with poor or very poor health had literary skills of Entry Level 3 or below.

Low levels of literacy and numeracy were found to be associated with socio-economic deprivation. Adults in more deprived areas, such as the North East of England, performed at a lower level than those in less deprived areas such as the South East. Local authority tenants and those in poor health were particularly likely to lack basic skills.

A 2000 analysis of over 100 UK local education authority areas found educational attainment at 15–16 years of age to be strongly associated with coronary heart disease and subsequent infant mortality.

A study of the relationship of literacy to asthma knowledge revealed that 31% of asthma patients with a reading level of a ten-year-old knew they needed to see the doctors, even when they were not having an asthma attack, compared to 90% with a high school graduate reading level.

Treatment cost

In 2013 the US National Community Pharmacists Association sampled for one month 1,020 Americans above age 40 for with an ongoing prescription to take medication for a chronic condition and gave a grade C+ on adherence. In 2009, this contributed to an estimated cost of $290 billion annually. In 2012, increase in patient medication cost share was found to be associated with low adherence to medication.

The United States is among the countries with the highest prices of prescription drugs mainly attributed to the government's lack of negotiating lower prices with monopolies in the pharmaceutical industry especially with brand name drugs. In order to manage medication costs, many US patients on long term therapies fail to fill their prescription, skip or reduce doses. According to a Kaiser Family Foundation survey in 2015, about three quarters (73%) of the public think drug prices are unreasonable and blame pharmaceutical companies for setting prices so high. In the same report, half of the public reported that they are taking prescription drugs and a "quarter (25%) of those currently taking prescription medicine report they or a family member have not filled a prescription in the past 12 months due to cost, and 18 percent report cutting pills in half or skipping doses". In a 2009 comparison to Canada, only 8% of adults reported to have skipped their doses or not filling their prescriptions due to the cost of their prescribed medications.

Age

Both young and elderly status have been associated with non-adherence.

The elderly often have multiple health conditions, and around half of all NHS medicines are prescribed for people over retirement age, despite representing only about 20% of the UK population. The recent National Service Framework on the care of older people highlighted the importance of taking and effectively managing medicines in this population. However, elderly individuals may face challenges, including multiple medications with frequent dosing, and potentially decreased dexterity or cognitive functioning. Patient knowledge is a concern that has been observed.

In 1999 Cline et al. identified several gaps in knowledge about medication in elderly patients discharged from hospital. Despite receiving written and verbal information, 27% of older people discharged after heart failure were classed as non-adherent within 30 days. Half the patients surveyed could not recall the dose of their medication and nearly two-thirds did not know what time of day to take them. A 2001 study by Barat et al. evaluated the medical knowledge and factors of adherence in a population of 75-year-olds living at home. They found that 40% of elderly patients do not know the purpose of their regimen and only 20% knew the consequences of non-adherence. Comprehension,polypharmacy, living arrangement, multiple doctors, and use of compliance aids was correlated with adherence. According to a conservative estimate 10% of all hospital admissionsare through patients not managing their medication.

In children with asthma self-management compliance is critical and co-morbidities have been noted to affect outcomes; in 2013 it has been suggested that electronic monitoring may help adherence.

Social factors of treatment adherence have been studied in children and adolescent psychiatric disorders:

- Young people who felt supported by their family and doctor, and had good motivation, were more likely to comply.
- Young adults may stop taking their medication in order to fit in with their friends, or because they lack insight of their illness.
- Those who did not feel their condition to be a threat to their social well-being were eight times more likely to comply than those who perceived it as such a threat.
- Non-adherence is often encountered among children and young adults; young males are relatively poor at adherence.

Ethnicity

People of different ethnic backgrounds have unique adherence issues through literacy, physiology, culture or poverty. There are few published studies on adherence in medicine taking in ethnic minority communities. Ethnicity and culture influence some health-determining behaviour, such as participation in screening programmes and attendance at follow-up appointments.

Prieto *et al* emphasised the influence of ethnic and cultural factors on adherence. They pointed out that groups differ in their attitudes, values and beliefs about health and illness. This view could affect adherence, particularly with preventive treatments and medication for asymptomatic conditions. Additionally, some cultures fatalistically attribute their good or poor health to their god(s), and attach less importance to self-care than others. also

Measures of adherence may need to be modified for different ethnic or cultural groups. In some cases, it may be advisable to assess patients from a cultural perspective before making decisions about their individual treatment.

Prescription fill rates

Not all patients will fill the prescription at a pharmacy. In a 2010 U.S. study, 20–30% of prescriptions were never filled at the pharmacy. Reasons people do not fill prescriptions include the cost of the medication, A US nationwide survey of 1,010 adults in 2001 found that 22% chose not to fill prescriptions because of the price, which is similar to the 20–30% overall rate of unfilled prescriptions. Other factors are doubting the need for medication, or preference for self-care measures other than medication. Convenience, side effects and lack of demonstrated benefit are also factors.

Medication Possession Ratio

Prescription medical claims records can be used to estimate medication adherence based on fill rate. Patients can be routinely defined as being 'Adherent Patients' if the amount of medication furnished is at least 80% based on days' supply of medication divided by the number of days patient should be

consuming the medication. This percentage is called the medication possession ratio (MPR). 2013 work has suggested that a medication possession ratio of 90% or above may be a better threshold for deeming consumption as 'Adherent'.

Two forms of MPR can be calculated, fixed and variable. Calculating either is relatively straightforward, for Variable MPR (VMPR) it is calculated as the number of days' supply divided by the number of elapsed days including the last prescription.

For the Fixed MPR (FMPR) the calculation is similar but the denominator is the number of days in a year whilst the numerator is constrained to be the number of days' supply within the year that the patient has been prescribed.

For medication in tablet form it is relatively straightforward to calculate the number of days' supply based on a prescription. Some medications are less straightforward though because a prescription of a given number of doses may have a variable number of days' supply because the number of doses to be taken per day varies, for example with preventative corticosteroid inhalers prescribed for asthma where the number of inhalations to be taken daily may vary between individuals based on the severity of the disease.

Course completion

Once started, patients seldom follow treatment regimens as directed, and seldom complete the course of treatment. In respect of hypertension, 50% of patients completely drop out of care within a year of diagnosis. Persistence with first-line single antihypertensive drugs is extremely low during the first year of treatment. As far as lipid-lowering treatment is concerned, only one third of patients are compliant with at least 90% of their treatment. Intensification of patient care interventions (e.g. electronic reminders, pharmacist-led interventions, healthcare professional education of patients) improves patient adherence rates to lipid-lowering medicines, as well as total cholesterol and LDL-cholesterol levels.

The World Health Organization (WHO) estimated in 2003 that only 50% of people complete long-term therapy for chronic illnesses as they were prescribed, which puts patient health at risk. For example, in 2002 statin compliance dropped to between 25–40% after two years of treatment, with patients taking statins for what they perceive to be preventative reasons being unusually poor compliers.

A wide variety of packaging approaches have been proposed to help patients complete prescribed treatments. These approaches include formats that increase the ease of remembering the dosage regimen as well as different labels for increasing patient understanding of directions. For example, medications are sometimes packed with reminder systems for the day and/or

time of the week to take the medicine. Some evidence shows that reminder packaging may improve clinical outcomes such as blood pressure.

A not-for-profit organisation called the Healthcare Compliance Packaging Council of Europe] (HCPC-Europe) was set up between the pharmaceutical industry, the packaging industry with representatives of European patients organisations. The mission of HCPC-Europe is to assist and to educate the healthcare sector in the improvement of patient compliance through the use of packaging solutions. A variety of packaging solutions have been developed by this collaboration.

4.10 World Health Organisation Barriers to Adherence

The World Health Organization (WHO) groups barriers to medication adherence into five categories; health care team and system-related factors, social and economic factors, condition-related factors, therapy-related factors, and patient-related factors. Common barriers include:

Barrier	**Category**
Poor Patient-provider Relationship	Health Care Team and System
Inadequate Access to Health Services	Health Care Team and System
High Medication Cost	Social and Economic
Cultural Beliefs	Social and Economic
Level of Symptom Severity	Condition
Availability of Effective Treatments	Condition
Immediacy of Beneficial Effects	Therapy
Side Effects	Therapy
Stigma Surrounding Disease	Patient

Inadequate Knowledge of Treatment	Patient

Improving Compliance rates

Role of health care providers

Health care providers play a great role in improving adherence issues. Providers can improve patient interactions through motivational interviewing and active listening. Health care providers should work with patients to devise a plan that is meaningful for the patient's needs. A relationship that offers trust, cooperation, and mutual responsibility can greatly improve the connection between provider and patient for a positive impact. The wording that health care professionals take when sharing health advice may have an impact on adherence and health behaviours, however, further research is needed to understand if positive framing (e.g., the chance of surviving is improved if you go for screening) versus negative framing (e.g., the chance of dying is higher if you do not go for screening) is more effective for specific conditions.

Technology

In 2012 it was predicted that as telemedicine technology improves, physicians will have better capabilities to remotely monitor patients in real-time and to communicate recommendations and medication adjustments using personal mobile devices, such as smartphones, rather than waiting until the next office visit.

Medication Event Monitoring Systems, as in the form of smart medicine bottle tops, smart pharmacy vials or smart blister packages as used in clinical trials and other applications where exact compliance data are required, work without any patient input, and record the time and date the bottle or vial was accessed, or the medication removed from a blister package. The data can be read via proprietary readers, or NFC enabled devices, such as smartphones or tablets. A 2009 study stated that such devices can help improve adherence.

The effectiveness of two-way email communication between health care professionals and their patients has not been adequately assessed.

Mobile phones

As of 2019, 5.15 billion people, which equates to 67% of the global population, have a mobile device and this number is growing. Mobile phones have been used in healthcare and has fostered its own term, mHealth. They have also played a role in improving adherence to medication. For example, text messaging has been used to remind patients to take their medication in patients with chronic conditions such as asthma and hypertension. Other examples include the use of smartphones for synchronous and asynchronous Video Observed Therapy (VOT) as a replacement for the currently resource intensive standard of Directly Observed Therapy (DOT) (recommended by the WHO) for Tuberculosis management. Other mHealth interventions for

improving adherence to medication include smartphone applications, voice recognition in interactive phone calls and Telepharmacy. Some results show that the use of mHealth improves adherence to medication and is cost-effective, though some reviews report mixed results. Studies show that using mHealth to improve adherence to medication is feasible and accepted by patients. mHealth interventions have also been used alongside othertelehealth interventions such as wearable wireless pill sensors, smart pillboxes and smart inhalers

Health and disease Management

A WHO study estimates that only 50% of patients suffering from chronic diseases in developed countries follow treatment recommendations. The

Asthma non-compliance (28–70% worldwide) increases the risk of severe asthma attacks requiring preventable ER visits and hospitalisations; compliance issues with asthma can be caused by a variety of reasons including: difficult inhaler use, side effects of medications, and cost of the treatment.

Cancer

200,000 new cases of cancer are diagnosed each year in the UK. One in three adults in the UK will develop cancer that can be life-threatening, and 120,000 people will be killed by their cancer each year. This accounts for 25% of all deaths in the UK. However while 90% of cancer pain can be effectively treated, only 40% of patients adhere to their medicines due to poor understanding.

The reasons for non-adherence have been given by patients as follows:

- The poor quality of information available to them about their treatment
- A lack of knowledge as to how to raise concerns whilst on medication
- Concerns about unwanted effects
- Issues about remembering to take medication

Partridge *et al* (2002) identified evidence to show that adherence rates in cancer treatment are variable, and sometimes surprisingly poor. The following table is a summary of their findings:

Type of Cancer	Measure of non-Adherence	Definition of non-Adherence	Rate of Non-Adherence
Haematological malignancies	Serum levels of drug metabolites	Serum levels below expected	83%

		threshold	
Breast cancer	Self-report	Taking less than 90% of prescribed medicine	47%
Leukemia or non Hodgkin's lymphoma	Level of drug metabolite in urine	Level lower than expected	33%
Leukemia, Hodgkin's disease, non Hodgkin's	Self-report and parent report	More than one missed dose per month	35%
Lymphoma, other malignancies	Serum bioassay	Not described	
Hodgkin's disease, acute lymphocytic leukemia (ALL)	Biological markers	Level lower than expected	50%
ALL	Level of drug metabolite in urine	Level lower than expected	42%
ALL	Level of drug metabolites in blood	Level lower than expected	10%
ALL	Level of drug metabolites in blood	Level lower than expected	2%

Note:Medication event monitoring system - a medication dispenser containing a microchip that records when the container is opened and from Partridge et al (2002)

In 1998, trials evaluating Tamoxifen as a preventative agent have shown dropout rates of around one-third:

- 36% in the Royal Marsden Tamoxifen Chemoprevention Study of 1998
- 29% in the National Surgical Adjuvant Breast and Bowel Project of 1998

In March 1999, the "Adherence in the International Breast Cancer Intervention Study" evaluating the effect of a daily dose of Tamoxifen for five years in at-risk women aged 35–70 years was

- 90% after one year
- 83% after two years
- 74% after four years

Diabetes

Patients with diabetes are at high risk of developing coronary heart disease and usually have related conditions that make their treatment regimens even more complex, such as hypertension, obesity and depression which are also characterised by poor rates of adherence.

- Diabetes non-compliance is 98% in US and the principal cause of complications related to diabetes including nerve damage and kidney failure.
- Among patients with Type 2 Diabetes, adherence was found in less than one third of those prescribed sulphonylureas and/or metformin. Patients taking both drugs achieve only 13% adherence.

Hypertension

- Hypertension non-compliance (93% in US, 70% in UK) is the main cause of uncontrolled hypertension-associated heart attack and stroke.
- In 1975, only about 50% took at least 80% of their prescribed anti-hypertensive medications.

As a result of poor compliance, 75% of patients with a diagnosis of hypertension do not achieve optimum blood-pressure control.

Mental illness

A 2003 review found that 41–59% of mentally ill patients took their medication infrequently or not at all. A 2006 review investigated the effects of compliance therapy for schizophrenia: and found no clear evidence to suggest that compliance therapy was beneficial for people with schizophrenia and related syndromes.

Importance of play during hospitalization of children

Hospitalization constitutes an unpleasant experience both for adults and mostly for children, who suddenly have to leave the familiar place of their home and the persons who are important for them, and stop their favorite activities, including play

Removal from one's home and entry to the intimidating environment of a hospital cause acute anxiety and stress both to the child and to the child's family These negative feelings are intensified whenever there is a chronic or

severe and life-threatening disease. The main causes of such feelings seem to include fear of medical examinations, pain, death, fear of separation from the parents, and fear of diagnosis, uncertainty, loss of control and safety

Upon hospital admission, particular attention is paid to the improvement of the clinical symptoms of the disease and to a reduction in the psychological burden. As a result, play is often disregarded, or considered of minor importance. However, the role and value of play increases when the child is repeatedly hospitalized, mostly due to a chronic disease or disability, since it decisively contributes to emotional, mental well-being, self-confidence and self-esteem

Therapeutic play is defined as a framework of activities taking the psychosocial and cognitive development of children into account, in order to facilitate the emotional and physical well-being of hospitalized children .Another definition refers to play as a structured form of play activities designed based on the age, development of cognitive functions, and health condition of a child .

A child's ability to play while being in the hospital constitutes a sign of health in a particularly difficult environment, which shows that the child may continue his/her usual activities, or that there is some progress in the course of the disease .Certainly, there are also other activities which may be helpful to achieve this goal, e.g. dancing, provided that the appropriate conditions are ensured and the child may cope with them .

Play is a form of communication and self-expression, which gives them the possibility of communicating with both the family and the medical and nursing staff, while helping them process a series of emotions .

In addition, play helps children become familiar with the unknown – until then – environment of the hospital, express their feelings and their concerns, feel more comfortable, or familiarize themselves with the medical procedures required (e.g., venipuncture), and make choices so as to feel that they maintain control. Many children use a toy (e.g. a stuffed animal) in order to cope with different medical procedures. Teddy bears often accompany children to the hospital and stuffed animals are in the arms of young children whenever there is a blood test or, for example, when they are vaccinated .

Nurses may use play as healthcare strategy for hospitalized children in three main fields: in everyday practice, during the preparation of children for surgery and invasive procedures, and also during painful and unpleasant procedures .

The therapeutic use of play presupposes theoretical training, patience, and willingness to occupy oneself with children. Therefore, it constitutes a main component of healthcare of ill children and helps them better understand the needs of the children and help them prepare themselves as much as possible for therapeutic procedures .

Play in the Hospital

Play in the hospital has multiple objectives, while it is of such considerable importance that it is thought that it may be of assistance in the recovery of ill children .

- Play in the hospital ensures a type of connection with the familiar, friendly environment of home.
- Helps to create a continuity of everyday life.
- Provides a way out of all negative feelings and disappointment that may possibly accompany a child upon hospital admission and hospitalization, while they may be 'transformed' through play.
- Reduces distress and anxiety, while developing respect for other people's views and feelings.
- Helps children maintain their self-esteem and confidence, and, thus, feel that they may have control of the entire situation.
- Contributes in the development of new creative solutions in the problems observed.
- Teaches in an amusing way. Almost in all cases of hospitalization, children undergo invasive medical procedures, including catheterization, venipuncture, and blood tests. Play may help young patients become familiar with such procedures and learn exactly how they are carried out, so as to reduce their fear and help their adaptation.
- Encourages the participation of parents and brothers and sisters. Thus, children achieve a stronger feeling of normality and continuation of their past life, while alleviating parents' anxiety.
- Facilitates communication among children. Play is an excellent means of communication and development of social relationships and mutual assistance.
- Reduces regression, i.e., return to previous stages of development. Such regression among children may be shown by various disorders, e.g., enuresis, or behaviors including continuous crying, continuous search for parental care, outbursts of anger, and aggression. Play gives a way out of repressed desires, anxiety, and fear, and allows children express themselves in a more creative and pleasant way.
- Offers joy and amusement.

Focused play techniques used among hospitalized children are used to prepare them for surgery or other unpleasant medical procedures. Sometimes, even before hospital admission, the children may be encouraged to play with masks, nursing uniforms, syringes, stethoscopes. Teddy bears or dolls may also be

used for demonstrations, for example, a demonstration of how placing of a peripheral venous catheter is done .Painting and sketching may be used when other means are unavailable, for example, among children confined to bed, e.g., after a car accident .

Therapeutic play is effective in reducing children's anxiety and fears from the time of hospital admission to the post-operative period or hospital discharge, achieving self-expression ,cooperation during painful procedures, and willingness to return to the hospital to continue their treatment .

Apart from the alleviation of psychological distress, therapeutic play also seems to be effective in reducing the physical symptoms of anxiety .The hospital area makes spontaneous play very difficult, since family and known objects are absent, daily routines have been interrupted, and, at the same time, there are real or suspected risks of infections, medication, and invasive medical procedures .

Assistance provided by therapists is of great importance, since young children usually find it hard to play spontaneously, especially in an environment like hospital environment. However, even when they manage to play spontaneously, their play is usually not so productive as if it had been organized by a specialist .To maximize the benefit resulting from playing, its use as a part of a well-designed healthcare plan must be systematically promoted .

A therapist may make a list of the things that the child does not like, which are related to hospitalization. The therapist may write a letter, together with the child, addressed to the parents, to friends, to the doctors or nurses, even to a stuffed animal. They may even write and paint a book about disease and hospitalization .

It must always be taken into account that there are certain factors determining how effective play therapy may be in the hospital. Certain limits are necessary too, but there must be a balance (many limits prevent children's play, very few allow bad behavior) and one must always consider a child's level of development. Limits in play therapy are helpful in ;

- Providing physical and emotional safety for therapists and children;
- Adopting a positive attitude towards children;
- Strengthening reality;
- Safely expressing any negative feelings;
- Promoting a child's sense of responsibility and control, so as to enhance the development of consistency and stability in relationships;
- Providing a cleansing experience for children;
- Protecting the play area.

In research, there are papers documenting the efficacy of play therapy. In one of them, 30 minutes of play therapy every day seemed to help children hospitalized in a pediatric department to avoid an increase in anxiety levels during their hospitalization, unlike the children of the control group ,while another paper has found a considerable decrease in the children's fear, according to their reports, with just two half-hourly sessions of play therapy .

Apart from the aforementioned points, play therapy also seems to be an appropriate treatment for abused children who are admitted to a pediatric department. Many of these children better express themselves through activities rather than through words. Thus, play therapy in a safe environment may teach them to express themselves and be able to cope with their difficulties .

Pre-Operative preparation and preparation for invasive Procedures

When a child is admitted to hospital for surgery, anxiety, both for the disease and for the imminent surgical procedure, may be the first component of the crisis the child is faced with. Thus, surgical anxiety is an answer to the fear of hospitalization, disease, anesthesia, and surgery .

Anxiety among children is a frequent phenomenon and has been associated with several negative behaviors, both pre-operatively (stimulation, enuresis, intense crying) and post-operatively (pain, sleep disorders, stress of separation), while children are more vulnerable than adults .Post-operative anxiety is related to anxiety in the pre-operative period and in the beginning of anesthesia ,while post-operative recovery presents more complications among children with high levels of pre-operative anxiety .Children often experience anxiety when they are separated from their parents for the operation ,while pediatric anxiety is associated with a high frequency of post-operative stress of separation, fear, eating and sleep disorders .

Personalization of play prior to surgery is an intervention effectively reducing anxiety, since it is based on the patient's history, any previous negative experiences from hospitalization, and, mostly, age .

Ghabeli F., Moheb N., and Nasab SDH, (2014), have conducted a study among 60 children, aged 3-8 years, who were about to undergo ENT surgery, and have found, among other things, that play and participation in team games prior to surgery contributed to a considerable decrease in their anxiety .In other research has shown that, when the children were left to play with dolls or other toys before surgery, they were calmer and showed less negative behavior .

Children suffering from cancer

Apart from normal stress caused by hospitalization, children suffering from cancer have to face a disease which is accompanied by a long-term treatment with several difficult side effects, including frequent, probably long-term periods of hospitalization, a disease which may result in death .

Play therapy among children suffering from a terminal disease may create an atmosphere where young patients, even for a short period of time, will be able to develop a sense of control of the situation, they will have the chance to handle their lives in their own way, and will be able to externalize their frustrations, fears, and feelings .

In order to provide complete care to dying children, nurses working in the context of pediatric palliative care must realize that children need opportunities to talk about their lives and incorporate it into the way for death. Play is the most convenient way to help children have the chance to say whatever they want. For children suffering from a serious disease restricting their life expectancy, play is the most natural means to release their aggression and assume control of their world .

All children receiving palliative care need play and, despite the fact that not all of them need play therapy, the need for this kind of therapeutic intervention is higher in this vulnerable group of children .

4.11PROBLEMS DUE TO HOSPITALIZATION

- **Problems** associated with extended bed rest, including pressure sores.
- Undernutrition.
- Confusion and decline in mental function.
- Incontinence.
- Inability to urinate.
- Falls.
- Lack of sleep.

Family-centered care or Relationship-Centered Care is one of four approaches that provides an expanded view of how to work with children and families. Family-centered service is made up of a set of values, attitudes, and approaches to services for children with special needs and their families. In some family-centered settings such as the Hasbro Children's Partial Hospital Program, medical and psychiatric services are integrated to help teach parents and children methods to treat illness and disease. Family-centered service recognizes that each family is unique; that the family is the constant in the child's life; and that they are the experts on the child's abilities and needs. The family works with service providers to make informed decisions about the services and supports the child and family receive. In family-centered service, the strengths and needs of all family members are considered.

Family-centered service reflects a shift from the traditional focus on the biomedical aspects of a child's condition to a concern with seeing the child in context of their family and recognizing the primacy of family in the child's life. The principles argue in favor of an approach that respects families as integral and coequal parts of the health care team. This approach is expected to improve the quality and safety of a patient's care by helping to foster communication between families and health care professionals. Furthermore, by taking family/patient input and concerns into account, the family feels

comfortable working with professionals on a plan of care, and professionals are "on board" in terms of what families expect with medical interventions and health outcomes. In some health systems, patients and family members serve as advisers to the hospital in order to provide input that can lead to general quality improvement efforts.[3] Family-centered approaches to health care intervention also generally lead to wiser allocation of health care resources, as well as greater patient and family satisfaction.

Family

“Family” means any person(s) who plays a significant role in an individual's life. This may include a person(s) not legally related to the individual who act as advocates[4]. Members of “family” include spouses, domestic partners, and both different-sex and same-sex significant others. “Family” includes a minor patient's parent or parents, regardless of the gender of either parent. Solely for purposes of visitation policy, the concept of parenthood is to be liberally construed without limitation as encompassing legal parents, foster parents, same-sex parent, stepparents, those serving in loco parentis (in place of the parent), and other persons operating in caretaker roles.

This definition of family was developed in consultation with the Healthcare Equality Index Advisory Council, Gay and Lesbian Medical Association and Joint Commission staff members. Like the majority of the definitions of “family” contained in submitted hospital policy, this definition establishes a broad and encompassing concept of family. The specifically enumerated members of family provide guidance to staff and prevent biased interpretation to the contrary. The concept of “domestic partners” contained in this definition encompasses not only domestic partnerships, but all legally recognized same-sex relationships, including civil unions and reciprocal beneficiary arrangements. The definition also focuses on a functional definition of parenthood as established by the individual's role as caretaker of a minor child. This is designed to ensure visitor access for the individuals most responsible for the care of a minor patient, even if this caretaker relationship lacks formal recognition under applicable state law.

This definition of “family” places hospital personnel on notice as to the unique nature of parenthood in the visitation context. While the definition requires that caretaker-individuals be granted access to visit minor patients, this caretaker status does not necessarily carry with it the rights that accompany legal parental status. For instance, applicable state law may dictate that only a biological or custodial parent may determine the course of medical care for a minor child.

Role of the family

While specific methods of implementing family-centered care approach differs from facility to facility, procedures are fairly similar. On admission, the patient usually designates one or two people who will serve as their primary "care partners". The admitting staff discuss the reasons for admission with the

patient and their "care partners" and what health criteria are required for the patient's discharge.

"Care partners" are then intricately involved with the patient's care by their entire attending healthcare team, including physicians, nurses, nutritionists, social workers, and more. At every stage, "care partners" and patients discuss with healthcare professionals test results, the state of the patient's current health, what type of things to expect throughout the day, and discharge goals. "Care partners" are invited to take part in nursing interventions, including bathing, feeding, helping the nursing staff with moving the patient, and assisting the patient in exercising or moving about the unit. "Care partners" are also invited to take an active role in "rounds," providing feedback and asking questions reflective of theirs and the patient's wishes or concerns.

"Care partners" are also indoctrinated on various elements of hospital operating policy, such as quiet time and visitation rules. The "care partners" are then generally allowed to manage the adherence to these policies in a manner conducive to the patient's healing and common sense—for example, by managing how many visitors are present in the patient's room.

Advantages and Disadvantages

Family-centered care emerged as an important concept in health care at the end of the 20th century; but the implementation of Family Centered care was met with a variety of snags. Prior to the early 1990s, the relationship between care providers and patients was distant. The traditional model of care centered on physicians, and an expectation that patients and their families would assume a passive role as an observer, rather than a participant. Healing was treated largely as an abstract or business-like affair. Special requests by the patient were seen as interfering with the provision of their care or even as being a detriment to their health. Modern ideas like open visitation or care partners were almost unheard of and were generally dismissed as impossible to accomplish. This was compounded by the implementation of Health Maintenance Organizations, which successfully reigned in the rising healthcare costs of the 1970s at the cost of the patient-healthcare worker relationship.

Much of the early work on Family Centered care emerged from the pediatric and geriatric medicine fields; for example, as research came to light about the effects of separating hospitalized children from their families, many healthcare institutions began to adopt policies that welcomed family members to be with their child around the clock. As awareness increased of the importance of meeting the psychosocial and holistic needs of not only children, but all patients, the family-centered care model began to make serious headway as a bonafide intervention model. In the United States, this was further encouraged by Federal legislation in the late 1980s and early 1990s that provided additional validation on the importance of family-centered principles.

Beginning in the mid-1990s (although elements of family-centered care began appearing in the early 1980s), however, this situation began to change. Studies

began to show that many of the supposed detriments to family-centered care were negligible, not supported by research, or untrue. A study conducted in 2001 showed that open visitation had little to no effect on physiologic parameters such as heart rate, blood pressure, respiratory rate, cardiac arrhythmias, and intercranial pressure. Indeed, evidence suggested anxiety levels and general cardiovascular health were positively affected after the implementation of family-centered care, leading to fewer medical interventions being required (physical or chemical therapies in particular). Another area of concern, septic and infection control, found that as long as a patient's visitors were educated in the proper asepticprocedure (such as hand washing and use of handsanitizer gel), infection control outcomes were not negatively affected by unrestricted visitation.

Patient care was also positively affected. Decubidation rates in facilities with family-centered care dropped significantly. In one study, it was found that patients receiving family-centered care were far more likely to have met the criteria of medical and nursing care plans (such as drinking x amount of fluids every eight hours, moving from NP suctioning to bulb suctioning, or the measurement of patient's intake/output), as the patient's family took it upon themselves to encourage or assist the patient in accomplishing these goals. Family and close friends were more likely to identify slight variations in the patient's mental or physical health that health care professionals largely unfamiliar with the patient may miss. Furthermore, while health care professionals are very talented at their work, their jobs are generally limited by the walls of the health care facility, whereas a patient's family is not. Enlisting a patient's family as a part of their health care team helps enable their ability to assist, manage, and assess the patient's healing after their discharge from a health care facility.

A study undertaken at the University of Virginia's Children's Hospital showed that sharing information and involving family in a patient's care (via the family-centered care model described previously) had the following effects:

- A rise in staff satisfaction due to reduced phone calls by security at night;
- Improved consistency of information given to family members;
- A decrease in clinical workload; and
- A significant rise in patient satisfaction scores on the Press-Ganey scale in the areas of Accommodations and Comfort of Visitors (93 to 98), Information Provided to Family (87 to 99), Staff Attitudes Towards Visitors (62 to 75), and Safety and Security Felt at the Hospital (86 to 88)

A study conducted at eight hospitals demonstrated that implementing family-centered rounds, an intervention to standardize communication between families and healthcare providers, reduced the rate of harmful medical errors.

A research study published in Denmark in 2015, examined the effect of nursing support on parents of children admitted to the Pediatric Intensive Care Unit. The study resulted in an increased satisfaction from parents of the support provided by nurses who were trained with the NPST, the Nurse Parent Support Tool manual .

4.12 PSYCHOLOGICAL PROBLEMS OF HOSPITALIZED PATIENTS

He Psychological Effect of a Hospital Stay on Seniors



When your senior loved one is discharged after a hospital stay, it's a time for celebration. They're back to their daily routine and surrounded by the familiar people and places they love. But it's important to be aware of the psychological impact a hospital stay can have on your loved one. The stress of a hospital stay can turn into a decline in an elderly patient's mental and physical health, slowing down their long-term recovery, well-being, and quality of life.

Cognitive Decline

A 2012 study from *Neurology* suggested that in elderly patients, cognitive declines more than double after a hospital stay, affecting patients' thinking and memory skills. The longer the hospitalization, the greater the effect. Why? One possible cause is delirium, a sudden change in mental function that happens with about 20 percent of hospital patients. These people experience confusion, disorientation, and agitation while hospitalized. Doctors believe that the effects of delirium, once thought to be temporary, may actually linger and cause a long-term cognitive decline.

Other possible explanations include uncontrolled blood sugar; patients experiencing small, undetectable strokes; or a lack of mental stimulation during the length of the stay. Boredom is a common problem among hospital patients, who may have little to do besides watch a small number of channels on an overhead TV or browse a very limited number of books and magazines.

If your senior loved one is in the hospital, visit as often as you can to give them much-needed mental stimulation. Consider bringing a care package to keep them sharp when you can't be there: bring favorite books, magazines, crafts, or activities like crossword puzzles to keep their minds engaged and help stave off a boredom-induced decline in function.

Physical Decline

For elderly patients, a hospital stay can bring new health issues and disabilities to the forefront. Because hospital patients are typically bedridden for much of the day, they become weaker and less able to resume their daily routine after discharge. Research shows that about a third of patients over 70 and over half of patients over 85 leave the hospital with a greater level of disability than when they arrived.

That means once these patients are discharged, they're less able to care for themselves. The psychological effect of that helplessness can be profound. Independence and being able to take care of ourselves in basic ways is something we take for granted in our younger years. Admitting you need assistance to bathe, dress yourself, or to get up and walk is a psychological hurdle that many seniors struggle with.

Lingering Stress

Hospital stays can be a life-changing event for patients. It's a massive disruption of routine, and it's isolating. The patients' loved ones have lives of their own, and can't stay by a bedside all day to provide companionship. Nurses and assistants are even busier. The longer the stay, the harder it becomes for the patient to remember his or her life outside of the hospital, and how to resume it upon discharge. The stress of this disruption and isolation can have a powerful dampening effect on the immune system, delaying recovery even after discharge.

Loss of Power

Seniors who are hospitalized often don't take long to start feeling out of control--especially if others are in charge of making decisions for them. You may even find yourself pressuring your loved one to accept treatment they would rather decline or to accept hospitalization even when they'd rather not, simply because it's the logical choice. That loss of power, however, can leave seniors struggling long after the hospitalization is over.

Comforting a loved one who is hospitalized can be a difficult process, especially if they aren't able to articulate what they're feeling. Ensuring that there is someone on hand to provide support, however, can make a hospitalized loved one feel more confident and cared for. To be more prepared for the lingering effects of a hospital stay.

4.13 TERMINOLOGIES

1.Perception 2. Misusing 3. Patient 4. Medical 5. Interpreting

4.14 MODEL QUESTIONS

1.Explain the Interpreting systems?

2.Discuss the types of perception?

3. Bring out the Adhering to medical advice?

4. Discuss the Patient-Practitioner relationship?

5. Explain the Problems due to Hospitalization?

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BLOCK II : HEALTH MANAGEMENT

UNIT-V THEORETICAL BASIS FOR CHANGING HEALTH HABITS

Structure

5.1 INTRODUCTION

Humans are motivated to assign causes to their actions and behaviors In social psychology, **attribution** is the process by which individuals explain the causes of behavior and events. Models to explain this process are called **attribution theory**. Psychological research into attribution began with the work of Fritz Heider in the early 20th century, and the theory was further advanced by Harold Kelley and Bernard Weiner.

Gestalt psychologist Fritz Heider is often described as the early-20th-century "father of attribution theory".

In his 1920s dissertation, Heider addressed the problem of phenomenology: why do perceivers attribute the properties such as color to perceived objects,

when those properties are mental constructs? Heider's answer that perceivers attribute that which they "directly" sense – vibrations in the air for instance – to an object they construe as causing those to sense data. "Perceivers faced with sensory data thus see the perceptual object as 'out there', because they attribute the sensory data to their underlying causes in the world."

Heider extended this idea to attributions about people: "motives, intentions, sentiments ... the core processes which manifest themselves in overt behavior".

Definition

Humans are motivated to assign causes to their actions and behaviors. In social psychology, attribution is the process by which individuals explain the causes of behavior and events. Models to explain this process are called attribution theory.

Meaning

Attribution theory proposes that the attributions people make about events and behavior can be classed as either internal or external. ... In an external, or situational, attribution, people infer that a person's behavior is due to situational factors. Example: Maria's car breaks down on the freeway. most commonly investigated theories of health behavior are the health belief model, the protection motivation theory, the theory of reasoned action, the theory of planned behavior, and the social-cognitive theory and self-efficacy (one's perceived ability to make or maintain specific changes

TYPES

External

External attribution, also called situational attribution, refers to interpreting someone's behavior as being caused by the situation that the individual is in. For example, if one's car tire is punctured, it may be attributed to a hole in the road; by making attributions to the poor condition of the highway, one can make sense of the event without any discomfort that it may in reality have been the result of their own bad driving

Ex. A child attributes their feelings to the weather outside their house; it is raining outside, because it is raining outside the child feels sad.

Internal

Internal attribution, or dispositional attribution, refers to the process of assigning the cause of behavior to some internal characteristic, like ability and motivation, rather than to outside forces. This concept has overlap with the Locus of control, in which individuals feel they are personally responsible for everything that happens to them.

Ex. A child attributes the weather to their feelings; the child is feeling sad, because the child is feeling sad it is raining outside.

5.2 THEORIES AND MODELS

Common sense psychology

From the book The Psychology of Interpersonal Relations (1958), Fritz Heider tried to explore the nature of interpersonal relationship, and espoused the concept of what he called "common sense" or "naïve psychology". In his theory, he believed that people observe, analyze, and explain behaviors with explanations. Although people have different kinds of explanations for the events of human behaviors, Heider found it is very useful to group explanation into two categories; Internal (personal) and external (situational) attributions. When an internal attribution is made, the cause of the given behavior is assigned to the individual's characteristics such as ability, personality, mood, efforts, attitudes, or disposition. When an external attribution is made, the cause of the given behavior is assigned to the situation in which the behavior was seen such as the task, other people, or luck (that the individual producing the behavior did so because of the surrounding environment or the social situation). These two types lead to very different perceptions of the individual engaging in a behavior.

Correspondent inference

Correspondent inferences state that people make inferences about a person when their actions are freely chosen, are unexpected, and result in a small number of desirable effects. According to Edward E. Jones and Keith Davis' correspondent inference theory, people make correspondent inferences by reviewing the context of behavior. It describes how people try to find out individual's personal characteristics from the behavioral evidence. People make inferences on the basis of three factors; degree of choice, expectedness of behavior, and effects of someone's behaviors. For example, we believe we can make stronger assumptions about a man who gives half of his money to charity, than we can about one who gives $5 to charity. An average person would not want to donate as much as the first man because they would lose a lot of money. By donating half of his money, it is easier for someone to figure out what the first man's personality is like. The second factor, that affects correspondence of action and inferred characteristic, is the number of differences between the choices made and the previous alternatives. If there aren't many differences, the assumption made will match the action because it is easy to guess the important aspect between each choice.

Covariation model

The covariation model states that people attribute behavior to the factors that are present when a behavior occurs and absent when it does not. Thus, the theory assumes that people make causal attributions in a rational, logical fashion, and that they assign the cause of an action to the factor that co-varies most closely with that action. Harold Kelley's covariation model of attribution looks to three main types of information from which to make an attribution decision about an individual's behavior. The first is *consensus information*, or information on how other people in the same situation and with the same stimulus behave. The second is *distinctive information,* or how the individual

responds to different stimuli. The third is *consistency information*, or how frequent the individual's behavior can be observed with similar stimulus but varied situations. From these three sources of affirmation observers make attribution decisions on the individual's behavior as either internal or external. There have been claims that people under-utilise consensus information, although there has been some dispute over this.

There are several levels in the covariation model: high and low. Each of these levels influences the three covariation model criteria. High consensus is when many people can agree on an event or area of interest. Low consensus is when very few people can agree. High distinctiveness is when the event or area of interest is very unusual, whereas low distinctness is when the event or area of interest is fairly common. High consistency is when the event or area of interest continues for a length of time and low consistency is when the event or area of interest goes away quickly.

Three-dimensional model

Bernard Weiner proposed that individuals have initial affective responses to the potential consequences of the intrinsic or extrinsic motives of the actor, which in turn influence future behavior. That is, a person's own perceptions or attributions as to why they succeeded or failed at an activity determine the amount of effort the person will engage in activities in the future. Weiner suggests that individuals exert their attribution search and cognitively evaluate casual properties on the behaviors they experience. When attributions lead to positive affect and high expectancy of future success, such attributions should result in greater willingness to approach to similar achievement tasks in the future than those attributions that produce negative affect and low expectancy of future success. Eventually, such affective and cognitive assessment influences future behavior when individuals encounter similar situations.

Weiner's achievement attribution has three categories:

1. stable theory (stable and unstable)
2. locus of control (internal and external)
3. controllability (controllable or uncontrollable)

Stability influences individuals' expectancy about their future; control is related with individuals' persistence on mission; causality influences emotional responses to the outcome of task.

5.3 HEALTH-LOCUS OF CONTROL

Definition

Locus of control is the degree to which people believe that they, as opposed to external forces, have control over the outcome of events in their lives. The concept was developed by Julian B. Rotter in 1954, and has since become an aspect of personality studies

Locus of control is the degree to which people believe that they, as opposed to external forces (beyond their influence), have control over the outcome of events in their lives. The concept was developed by Julian B. Rotter in 1954, and has since become an aspect of personality studies (see personality psychology). A person's "locus" (plural "loci", Latin for "place" or "location") is conceptualized as internal (a belief that one can control one's own life) or external (a belief that life is controlled by outside factors which the person cannot influence, or that chance or fate controls their lives).

Individuals with a strong internal locus of control believe events in their life derive primarily from their own actions: for example, when receiving exam results, people with an internal locus of control tend to praise or blame themselves and their abilities. People with a strong external locus of control tend to praise or blame external factors such as the teacher or the exam.

Locus of control has generated much research in a variety of areas in psychology. The construct is applicable to such fields as educational psychology, health psychology andclinical psychology. Debate continues whether specific or more global measures of locus of control will prove to be more useful in practical application. Careful distinctions should also be made between locus of control (a concept linked with expectancies about the future) and attributional style (a concept linked with explanations for past outcomes), or between locus of control and concepts such as self-efficacy.

- Typical expectancy shifts, believing that success (or failure) would be followed by a similar outcome
- Atypical expectancy shifts, believing that success (or failure) would be followed by a dissimilar outcome

Weiner's attribution theory as applied to student motivation

	Perceived locus of control	
	Internal	**External**
Attributions of control	Ability	Hardness of tasks
Attributions of no control	Effort	Luck or fate

Additional research led to the hypothesis that typical expectancy shifts were displayed more often by those who attributed their outcomes to ability, whereas those who displayed atypical expectancy were more likely to attribute their outcomes to chance. This was interpreted that people could be divided into those who attribute to ability (an internal cause) versus those who attribute to luck (an external cause). Bernard Weiner argued that rather than ability-versus-luck, locus may relate to whether attributions are made to stable or unstable causes.

The Health Locus of Control construct evolved from Social Learning Theory developed by Rotter in 1966. In the year1976, the first HLOC measure was created by Wallston, Wallston, Kaplan and Maides. Every person is different in regard to issues as controlled by themselves (internal locus of control)or not controlled by themselves(external locus of control).Wallston and Wallston(1982) create a criterion of Health Locus Of Control which tells either a person consider his health as controlled by himself(e.g. 'he himself is responsible for his health') or a person thought that his health is controlled by his destine(it's my fate that I am allright or sick), or person thought that his health is controllable by other expert persons (I can do things according to my doctors advice).

According to Weinstein (1983, 1984) indicated that the reason that people practicing same nonhealthy behaviours is because of their unrealistic optimism. Weinmen(1987)mention four cognitive factors which give contribution to unrealistic optimism:1. No physical experience with problem.2.The belief that with individual action the problem is able to be prevent.3.The belief if problem is not in present; it will not be in future.4.The belief that the problem is not frequent.

According to DiClemente et al.1991; Marcus et al.1992, the stages of change model which applied to various health-related behaviour within health psychology like smoking, alcoholism,weight loss and other screening behaviours(breast self examination) suggests the different set of beliefs and behaviours at various stages:

1. Precontemplation: Person not thinking for any behavioural change. Like 'Being a smoker I am glad and ready to continue the same'.

2. Contemplation: Person thinking over behavioural Change. 'Lately due to lot of cough, I should think to quit smoking'.

3. Preparation: Person starts creating changes. 'I am not go to pub and try to stop smoking'.

4. Action: Person actively pursuing changed behaviour. 'I have quit smoking'.

5. Maintenance: Person preserving the changed behaviour. 'The smoking has been stopped by me for ten weeks'.

5.4 HEALTH BELIEF MODEL

The health belief model (HBM) is a social psychological health behavior change model developed to explain and predict health-related behaviors, particularly in regard to the uptake of health services. The HBM was developed in the 1950s by social psychologists at the U.S. Public Health Service and remains one of the best known and most widely used theories in health behavior research. The HBM suggests that people's beliefs about health

problems, perceived benefits of action and barriers to action, and self-efficacy explain engagement (or lack of engagement) in health-promoting behavior. A stimulus, or cue to action, must also be present in order to trigger the health-promoting behavior.

Definition

The health belief model is a social psychological health behavior change model developed to explain and predict health-related behaviors, particularly in regard to the uptake of health services

Theoretical Constructs

The HBM theoretical constructs originate from theories in Cognitive Psychology. In early twentieth century, cognitive theorists believed that reinforcements operated by affecting expectations rather than by affecting behavior straightly. Mental processes are severe constitutes of cognitive theories that are seen as expectancy-value models, because they propose that behavior is a function of the degree to which people value a result and their evaluation of the expectation, that a certain action will lead that result. In terms of the health-related behaviors, the value is avoiding sickness. The expectation is that a certain health action could prevent the condition for which people consider they might be at risk.

The following constructs of the HBM are proposed to vary between individuals and predict engagement in health-related behaviors.

Perceived susceptibility

Perceived susceptibility refers to subjective assessment of risk of developing a health problem. The HBM predicts that individuals who perceive that they are susceptible to a particular health problem will engage in behaviors to reduce their risk of developing the health problem. Individuals with low perceived susceptibility may deny that they are at risk for contracting a particular illness. Others may acknowledge the possibility that they could develop the illness, but believe it is unlikely. Individuals who believe they are at low risk of developing an illness are more likely to engage in unhealthy, or risky, behaviors. Individuals who perceive a high risk that they will be personally affected by a particular health problem are more likely to engage in behaviors to decrease their risk of developing the condition.

The combination of perceived severity and perceived susceptibility is referred to as perceived threat. Perceived severity and perceived susceptibility to a given health condition depend on knowledge about the condition. The HBM predicts that higher perceived threat leads to a higher likelihood of engagement in health-promoting behaviors.

Perceived severity

Perceived severity refers to the subjective assessment of the severity of a health problem and its potential consequences. The HBM proposes that individuals who perceive a given health problem as serious are more likely to

engage in behaviors to prevent the health problem from occurring (or reduce its severity). Perceived seriousness encompasses beliefs about the disease itself (e.g., whether it is life-threatening or may cause disability or pain) as well as broader impacts of the disease on functioning in work and social roles. For instance, an individual may perceive that influenza is not medically serious, but if he or she perceives that there would be serious financial consequences as a result of being absent from work for several days, then he or she may perceive influenza to be a particularly serious condition.

Perceived benefits

Health-related behaviors are also influenced by the perceived benefits of taking action. Perceived benefits refer to an individual's assessment of the value or efficacy of engaging in a health-promoting behavior to decrease risk of disease. If an individual believes that a particular action will reduce susceptibility to a health problem or decrease its seriousness, then he or she is likely to engage in that behavior regardless of objective facts regarding the effectiveness of the action. For example, individuals who believe that wearing sunscreen prevents skin cancer are more likely to wear sunscreen than individuals who believe that wearing sunscreen will not prevent the occurrence of skin cancer.

Perceived barriers

Health-related behaviors are also a function of perceived barriers to taking action. Perceived barriers refer to an individual's assessment of the obstacles to behavior change. Even if an individual perceives a health condition as threatening and believes that a particular action will effectively reduce the threat, barriers may prevent engagement in the health-promoting behavior. In other words, the perceived benefits must outweigh the perceived barriers in order for behavior change to occur. Perceived barriers to taking action include the perceived inconvenience, expense, danger (e.g., side effects of a medical procedure) and discomfort (e.g., pain, emotional upset) involved in engaging in the behavior. For instance, lack of access to affordable health care and the perception that a flu vaccine shot will cause significant pain may act as barriers to receiving the flu vaccine. In a study about the breast and cervical cancer screening among Hispanic women, perceived barriers, like fear of cancer, embarrassment, fatalistic views of cancer and language, was proved to impede screening.

Modifying variables

Individual characteristics, including demographic, psychosocial, and structural variables, can affect perceptions (i.e., perceived seriousness, susceptibility, benefits, and barriers) of health-related behaviors. Demographic variables include age, sex, race, ethnicity, and education, among others. Psychosocial variables include personality, social class, and peer and reference group pressure, among others. Structural variables include knowledge about a given disease and prior contact with the disease, among other factors. The HBM suggests that modifying variables affect health-related behaviors indirectly by affecting perceived seriousness, susceptibility, benefits, and barriers.

5.5 LIMITATIONS

The HBM attempts to predict health-related behaviors by accounting for individual differences in beliefs and attitudes. However, it does not account for other factors that influence health behaviors. For instance, habitual health-related behaviors (e.g., smoking, seatbelt buckling) may become relatively independent of conscious health-related decision making processes. Additionally, individuals engage in some health-related behaviors for reasons unrelated to health (e.g., exercising for aesthetic reasons). Environmental factors outside an individual's control may prevent engagement in desired behaviors. For example, an individual living in a dangerous neighborhood may be unable to go for a jog outdoors due to safety concerns. Furthermore, the HBM does not consider the impact of emotions on health-related behavior. Evidence suggests that fear may be a key factor in predicting health-related behavior.

Alternative factors may predict health behavior, such as outcome expectancy (i.e., whether the person feels they will be healthier as a result of their behavior) and self-efficacy (i.e., the person's belief in their ability to carry out preventive behavior).

The theoretical constructs that constitute the HBM are broadly defined. Furthermore, the HBM does not specify how constructs of the model interact with one another. Therefore, different operationalizations of the theoretical constructs may not be strictly comparable across studies.

5.6 PROTECTION MOTIVATION THEORY

Protection motivation theory is a theory that was originally created to help clarify fear appeals. The protection motivation theory proposes that people protect themselves based on four factors: the perceived severity of a threatening event, the perceived probability of the occurrence, or vulnerability, the efficacy of the recommended preventive behavior, and the perceived self efficacy. Protection motivation stems from both the threat appraisal and the coping appraisal. The threat appraisal assesses the severity of the situation and examines how serious the situation is. The coping appraisal is how one responds to the situation. The coping appraisal consists of both efficacy and self-efficacy. Efficacy is the individual's expectancy that carrying out recommendations can remove the threat. Self-efficacy is the belief in one's ability to execute the recommended courses of action successfully. PMT is one model that explains why people engage in unhealthy practices and offers suggestions for changing those behaviors. It is educational and motivational. Primary prevention: taking measures to combat the risk of developing a health problem. (e.g., controlling weight to prevent high blood pressure). Secondary prevention: taking steps to prevent a condition from becoming worse. (e.g., remembering to take daily medication to control blood pressure).

In Protection motivation theory was founded by R.W. Rogers in 1975 in order to better understand fear appeals and how people cope with them. However Dr. Rogers would later expand on the theory in 1983 where he extended the theory to a more general theory of persuasive communication.

The theory was originally based on the work of Richard Lazarus who spent much of his time researching how people behave and cope during stressful situations. In his book, *Stress, Appraisal, and Coping*, Richard Lazarus discusses the idea of the cognitive appraisal processes and how they relate to coping with stress. He states that people "differ in their sensitivity and vulnerability to certain types of events, as well as in their interpretations and reactions". While Richard Lazarus came up with many of the fundamental ideas used in the protection motivation theory, Rogers was the first to apply the terminology when discussing fear appeals. Todaythe protection motivation theory is mainly used when discussing health issues and how people react when diagnosed with health related illnesses.

Theory

Threat-appraisal process

The threat appraisal process consists of both the severity and vulnerability of situation. It focuses on the source of the threat and factors that increase or decrease likelihood of maladaptive behaviours. Severity refers to the degree of harm from the unhealthy behavior. Vulnerability is the probability that one will experience harm. Another aspect of the threat appraisal is rewards. Rewards refer to the positive aspects of starting or continuing the unhealthy behavior. To calculate the amount of threat experienced take the combination of both the severity and vulnerability, and then subtract the rewards. Threat appraisal refers to children's evaluation of the degree to which an event has significant implications for their well-being. Theoretically, threat appraisal is related to Lazaraus' concept of primary appraisal, particularly to the way in which the event threatens the child's commitments, goals, or values. Threat appraisal is differentiated from the evaluation of stressfulness or impact of the event in that is assesses what is threatened, rather than simply the degree of stress or negativity of an event. Threat appraisal is also differentiated from negative cognitive styles, because it assesses children's reported negative appraisals for specific events in their lives rather than their typical style of responding to stressful events. Theoretically, higher threat appraisals should lead to negative arousal and coping and to increased psychological symptomatology.

Coping-appraisal process

The coping appraisal consists of the response efficacy, self-efficacy, and the response costs. Response efficacy is the effectiveness of the recommended behavior in removing or preventing possible harm. Self-efficacy is the belief that one can successfully enact the recommended behavior. The response costs are the costs associated with the recommended behavior. The amount of coping ability that one experiences is the combination of response efficacy and self-efficacy, minus the response costs. The coping appraisal process focuses on the adaptive responses and one's ability to cope with and avert the threat. The coping appraisal is the sum of the appraisals of the responses efficacy and self-efficacy, minus any physical or psychological "costs" of adopting the

recommended preventive response. Coping Appraisal involves the individual's assessment of the response efficacy of the recommended behavior (i.e. perceived effectiveness of sunscreen in preventing premature aging) as well as one's perceived self-efficacy in carrying out the recommended actions. (i.e. confidence that one can use sunscreen consistently).

The Threat and coping appraisal variables combine in a fairly straightforward way, although the relative emphasis may vary from topic to topic and with target population.

In *Stress, Appraisal, and Coping*, Richard Lazarus states that, "studies of coping suggest that different styles of coping are related to specific health outcomes; control of anger, for example, has been implicated in hypertension. Three routes through which coping can affect health include the frequency, intensity, duration, and patterning of neurochemical stress reactions; using injurious substances or carrying out activities that put the person at risk; and impeding adaptive health/illness-related behavior.".

Response efficacy

Response efficacy concerns beliefs that adopting a particular behavioral response will be effective in reducing the diseases' threat, and self-efficacy is the belief that one can successfully perform the coping response. In line with the traditional way of measuring the consequences of behavior, response efficacy was operationalized by linking consequences to the recommended behavior as well as to whether the subject regarded the consequences as likely outcomes of the recommended behavior. Among the 6 factors (vulnerability, severity, rewards, response efficacy, self-efficacy, and response costs), self-efficacy is the most correlated with protection motivation, according to meta-analysis studies.

Theory of planned Behaviour

In psychology, the theory of planned behaviour is a theory that links one's beliefs and behaviour. The theory states that intention toward attitude, subject norms, and perceived behavioural control, together shape an individual's behavioural intentions and behaviours.

The concept was proposed by Icek Ajzen to improve on the predictive power of the theory of reasoned action by including perceived behavioural control. It has been applied to studies of the relations among beliefs, attitudes, behavioural intentions and behaviours in various fields such as advertising, public relations, advertising campaigns, healthcare, sport management and sustainability.

5.7 CONCEPTS OF KEY VARIABLES

Normative beliefs and subjective norms

Normative belief: an individual's perception of social normative pressures, or relevant others' beliefs that they should or should not perform such behaviour.

- **Subjective norm**: an individual's perception about the particular behaviour, which is influenced by the judgment of significant others (e.g., parents, spouse, friends, teachers).

Control beliefs and perceived behavioural control

- **Control beliefs**: an individual's beliefs about the presence of factors that may facilitate or hinder performance of the behaviour. The concept of perceived behavioural control is conceptually related to self-efficacy.
- **Perceived behavioural control**: an individual's perceived ease or difficulty of performing the particular behaviour. It is assumed that perceived behavioural control is determined by the total set of accessible control beliefs.

Behavioural intention and behaviour

- **Behavioural intention**: an indication of an individual's readiness to perform a given behaviour. It is assumed to be an immediate antecedent of behaviour. It is based on attitude toward the behaviour, subjective norm, and perceived behavioural control, with each predictor weighted for its importance in relation to the behaviour and population of interest.
- **Behaviour**: an individual's observable response in a given situation with respect to a given target. Ajzen said a behaviour is a function of compatible intentions and perceptions of behavioural control in that perceived behavioural control is expected to moderate the effect of intention on behaviour, such that a favorable intention produces the behaviour only when perceived behavioural control is strong

Conceptual / operational comparison

Perceived behavioural control vs. self-efficacy

As Ajzen (1991) stated in the theory of planned behaviour, knowledge of the role of perceived behavioural control came from Bandura's concept of self-efficacy. More recently, Fishbein and Cappella stated that self-efficacy is the same as perceived behavioural control in his integrative model, which is also measured by items of self-efficacy in a previous study.

In previous studies, the construction and the number of item inventory of perceived behavioural control have depended on each particular health topic. For example, for smoking topics, it is usually measured by items such as "I don't think I am addicted because I can really just not smoke and not crave for it," and "It would be really easy for me to quit."

The concept of self-efficacy is rooted in Bandura's social cognitive theory. It refers to the conviction that one can successfully execute the behaviour required to produce the outcome. The concept of self-efficacy is used as perceived behavioural control, which means the perception of the ease or difficulty of the particular behaviour. It is linked to control beliefs, which refers to beliefs about the presence of factors that may facilitate or impede performance of the behaviour.

It is usually measured with items which begins with the stem, "I am sure I can ... (e.g., exercise, quit smoking, etc.)" through a self-report instrument in their questionnaires. Namely, it tries to measure the confidence toward the probability, feasibility, or likelihood of executing given behaviour.

Attitude toward behaviour vs. outcome expectancy

The theory of planned behaviour specifies the nature of relationships between beliefs and attitudes. According to these models, people's evaluations of, or attitudes toward behaviour are determined by their accessible beliefs about the behaviour, where a belief is defined as the subjective probability that the behaviour will produce a certain outcome. Specifically, the evaluation of each outcome contributes to the attitude in direct proportion to the person's subjective possibility that the behaviour produces the outcome in question.

Outcome expectancy was originated from the expectancy-value model. It is a variable-linking belief, attitude, opinion and expectation. The theory of planned behaviour's positive evaluation of self-performance of the particular behaviour is similar to the concept to perceived benefits, which refers to beliefs regarding the effectiveness of the proposed preventive behaviour in reducing the vulnerability to the negative outcomes, whereas their negative evaluation of self-performance is similar to perceived barriers, which refers to evaluation of potential negative consequences that might result from the enactment of the espoused health behaviour.

Social influence

The concept of social influence has been assessed by the social norm and normative belief in both the theory of reasoned action and theory of planned behaviour. Individuals' elaborative thoughts on subjective norms are perceptions on whether they are expected by their friends, family and the society to perform the recommended behaviour. Social influence is measured by evaluation of various social groups. For example, in the case of smoking:

1. Subjective norms from the peer group include thoughts such as, "Most of my friends smoke," or "I feel ashamed of smoking in front of a group of friends who don't smoke";
2. Subjective norms from the family include thoughts such as, "All of my family smokes, and it seems natural to start smoking," or "My parents were really mad at me when I started smoking"; and
3. Subjective norms from society or culture include thoughts such as, "Everyone is against smoking," and "We just assume everyone is a nonsmoker."

While most models are conceptualized within individual cognitive space, the theory of planned behaviour considers social influence such as social norm and normative belief, based on collectivistic culture-related variables. Given that an individual's behaviour (e.g., health-related decision-making such as diet, condom use, quitting smoking and drinking, etc.) might very well be located in and dependent on the social networks and organization (e.g., peer

group, family, school and workplace), social influence has been a welcomed addition.

Model

Human behaviour is guided by three kinds of consideration: behavioural beliefs, normative beliefs, and control beliefs. In their respective aggregates, behavioural beliefs produce a favorable or unfavorable attitude toward the behaviour, normative beliefs result in a subjective norm, and control beliefs gives rise to perceived behavioural control.

In combination, the attitude toward the behaviour, the subjective norm, and the perceived behavioural control lead to the formation of a behavioural intention. In particular, perceived behavioural control is presumed not only to affect actual behaviour directly, but also to affect it indirectly through behavioural intention.

As a general rule, the more favorable the attitude toward behaviour and the subjective norm, and the greater the perceived behavioural control, the stronger the person's intention to perform the behaviour should be. Finally, given a sufficient degree of actual control over the behaviour, people are expected to carry out their intentions when the opportunity arises.

Evaluation of the theory

Strengths

The theory of planned behaviour can cover people's non-volitional behaviour which cannot be explained by the theory of reasoned action.

An individual's behavioural intention cannot be the exclusive determinant of behaviour where an individual's control over the behaviour is incomplete. By adding "perceived behavioural control," the theory of planned behaviour can explain the relationship between behavioural intention and actual behaviour.

Several studies found that the TPB would help better predict health-related behavioural intention than the theory of reasoned action. The TPB has improved the predictability of intention in various health-related fields such as condom use, leisure, exercise, diet, etc.

In addition, the theory of planned behaviour as well as the theory of reasoned action can explain the individual's social behaviour by considering "social norm" as an important variable.

Limitations

Some scholars claim that the theory of planned behaviour is based on cognitive processing, and they have criticised the theory on those grounds. More recently, some scholars criticize the theory because it ignores one's needs prior to engaging in a certain action, needs that would affect behaviour regardless of expressed attitudes. For example, one might have a very positive attitude towards beefsteak and yet not order a beefsteak because he is not

hungry. Or, one might have a very negative attitude towards drinking and little intention to drink and yet engage in drinking as he's seeking group membership.

Also, one's emotions at the interviewing or decision-making time are ignored despite being relevant to the model as emotions can influence beliefs and other constructs of the model. Still, poor predictability for health-related behaviour in previous health research seems to be attributed to poor application of the model, associated methods and measures. Most of the research is correlational, and more evidence based on experimental studies is welcome although experiments, by nature, lack external validity because they prioritize internal validity.

Indeed, some experimental studies challenge the assumption that intentions and behaviour are merely consequences of attitudes, social norms, and perceived behavioural control. To illustrate, in one study, participants were prompted to form the intention to support a specific environmental organisation--such as to sign a petition. After this intention was formed, attitudes, social norms, and perceived behavioural control shifted. Participants became more likely to report positive attitudes towards this organisation and were more inclined to assume their social group would share comparable attitudes. These findings imply the associations between the three key elements--attitudes, social norms, and perceived behavioural control--and intentions may be bi-directional.

5.8 SOCIAL COGNITIVE THEORIES

Social cognitive theory (**SCT**), used in psychology, education, and communication, holds that portions of an individual's knowledge acquisition can be directly related to observing others within the context of social interactions, experiences, and outside media influences. This theory was advanced by Albert Bandura as an extension of his social learning theory. The theory states that when people observe a model performing a behavior and the consequences of that behavior, they remember the sequence of events and use this information to guide subsequent behaviors. Observing a model can also prompt the viewer to engage in behavior they already learned. In other words, people do not learn new behaviors solely by trying them and either succeeding or failing, but rather, the survival of humanity is dependent upon the replication of the actions of others. Depending on whether people are rewarded or punished for their behavior and the outcome of the behavior, the observer may choose to replicate behavior modeled. Media provides models for a vast array of people in many different environmental settings.

Social cognitive theory, used in psychology, education, and communication, holds that portions of an individual's knowledge acquisition can be directly related to observing others within the context of social interactions, experiences, and outside media influences.

Theoretical foundations

Human agency

Social cognitive theory is proposed in an agentic perspective, which suggests that, instead of being just shaped by environments or inner forces, individuals are self-developing, self-regulating, self-reflecting and proactive. Specifically, human agency operates within three modes:

- Individual Agency: A person's own influence on the environment;
- Proxy Agency: Another person's effort on securing the individual's interests;
- Collective Agency: A group of people work together to achieve the common benefits.

Human agency has four core properties:

- Intentionality: Individuals' active decision on engaging in certain activities;
- Forethought: Individuals' ability to anticipate the outcome of certain actions;
- Self-reactiveness: Individuals' ability to construct and regulate appropriate behaviors;
- Self-reflectiveness: Individuals' ability to reflect and evaluate the soundness of their cognitions and behaviors.

Human capability

Evolving over time, human beings are featured with advanced neural systems, which enable individuals to acquire knowledge and skills by both direct and symbolic terms. Four primary capabilities are addressed as important foundations of social cognitive theory: symbolizing capability, self-regulation capability, self-reflective capability, and vicarious capability.

1. Symbolizing Capability: People are affected not only by direct experience but also indirect events. Instead of merely learning through laborious trial-and-error process, human beings are able to symbolically perceive events conveyed in messages, construct possible solutions, and evaluate the anticipated outcomes.
2. Self-regulation Capability: Individuals can regulate their own intentions and behaviors by themselves. Self-regulation lies on both negative and positive feedback systems, in which discrepancy reduction and discrepancy production are involved. That is, individuals proactively motivate and guide their actions by setting challenging goals and then making effort to fulfill them. In doing so, individuals gain skills, resources, self-efficacy and beyond.
3. Self-reflective Capability: Human beings can evaluate their thoughts and actions by themselves, which is identified as another distinct feature of human beings. By verifying the adequacy and soundness of

their thoughts through enactive, various, social, or logical manner, individuals can generate new ideas, adjust their thoughts, and take actions accordingly.

4. Vicarious Capability: One critical ability human beings feature is the ability to adopt skills and knowledge from information communicated through a wide array of mediums. By vicariously observing others' actions and their consequences, individuals can gain insights into their own activities. Vicarious capability is of great value to human beings' cognitive development in nowadays, in which most of our information encountered in our lives derives from the mass media than trial-and-error processes.

Theoretical Components

Modeling

Social cognitive theory revolves around the process of knowledge acquisition or learning directly correlated to the observation of models. The models can be those of an interpersonal imitation or media sources. Effective modeling teaches general rules and strategies for dealing with different situations.

To illustrate that people learn from watching others, Albert Bandura and his colleagues constructed a series of experiments using a Bobo doll. In the first experiment, children were exposed to either an aggressive or non-aggressive model of either the same sex or opposite sex as the child. There was also a control group. The aggressive models played with the Bobo doll in an aggressive manner, while the non-aggressive models played with other toys. They found that children who were exposed to the aggressive models performed more aggressive actions toward the Bobo doll afterward, and that boys were more likely to do so than girls.

Following that study, Albert Bandura tested whether the same was true for models presented through media by constructing an experiment he called *Bobo Doll Behavior: A Study of Aggression*. In this experiment Bandura exposed a group of children to a video featuring violent and aggressive actions. After the video he then placed the children in a room with a Bobo doll to see how they behaved with it. Through this experiment, Bandura discovered that children who had watched the violent video subjected the dolls to more aggressive and violent behavior, while children not exposed to the video did not. This experiment displays the social cognitive theory because it depicts how people reenact behaviors they see in the media. In this case, the children in this experiment reenacted the model of violence they directly learned from the video.

Observations should include:

- *Attention* Observers selectively give attention to specific social behavior depending on accessibility, relevance, complexity, functional value of the behavior or some observer's personal attributes such as cognitive capability, value preference, preconceptions.

- *Retention* Observe a behavior and subsequent consequences, then convert that observation to a symbol that can be accessed for future reenactments of the behavior. Note: When a *positive behavior* is shown a positive reinforcement should follow, this parallel is similar for *negative behavior*.
- *Production* refers to the symbolic representation of the original behavior being translated into action through reproduction of the observed behavior in seemingly appropriate contexts. During reproduction of the behavior, a person receives feedback from others and can adjust their representation for future references.
- *Motivational process* reenacts a behavior depending on responses and consequences the observer receives when reenacting that behavior.

Modeling does not limit to only live demonstrations but also verbal and written behaviour can act as indirect forms of modeling. Modeling not only allows students to learn behaviour that they should repeat but also to inhibit certain behaviours. For instance, if a teacher glares at one student who is talking out of turn, other students may suppress this behavior to avoid a similar reaction. Teachers model both material objectives and underlying curriculum of virtuous living. Teachers should also be dedicated to the building of high self-efficacy levels in their students by recognizing their accomplishments.

Outcome expectancies

To learn a particular behavior, people must understand what the potential outcome is if they repeat that behavior. The observer does not expect the actual rewards or punishments incurred by the model, but anticipates similar outcomes when imitating the behavior (called *outcome expectancies*), which is why modeling impacts cognition and behavior. These expectancies are heavily influenced by the environment that the observer grows up in; for example, the expected consequences for a DUI in the United States of America are a fine, with possible jail time, whereas the same charge in another country might lead to the infliction of the death penalty.

For example, in the case of a student, the instructions the teacher provides help students see what outcome a particular behaviour leads to. It is the duty of the teacher to teach a student that when a behaviour is successfully learned, the outcomes are meaningful and valuable to the students.

Self-efficacy

Social cognitive theory posits that learning most likely occurs if there is a close identification between the observer and the model and if the observer also has a good deal of self-efficacy. Self–efficacy is the extent to which an individual believes that they can master a particular skill. Self-efficacy beliefs function as an important set of proximal determinants of human motivation, affect, and action—which operate on action through motivational, cognitive, and affective intervening processes.

According to Bandura, self-efficacy is "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations". Bandura and other researchers have found an individual's self-

efficacy plays a major role in how goals, tasks, and challenges are approached. Individuals with high self-efficacy are more likely to believe they can master challenging problems and they can recover quickly from setbacks and disappointments. Individuals with low self-efficacy tend to be less confident and don't believe they can perform well, which leads them to avoid challenging tasks. Therefore, self-efficacy plays a central role in behavior performance. Observers who have high level of self-efficacy are more likely to adopt observational learning behaviors.

Self-efficacy can be developed or increased by:

- **Mastery experience**, which is a process that helps an individual achieve simple tasks that lead to more complex objectives.
- **Social modeling** provides an identifiable model that shows the processes that accomplish a behavior.
- **Improving physical and emotional states** refers to ensuring a person is rested and relaxed prior to attempting a new behavior. The less relaxed, the less patient, the more likely they won't attain the goal behavior.
- **Verbal persuasion** is providing encouragement for a person to complete a task or achieve a certain behavior.

For example, students become more effortful, active, pay attention, highly motivated and better learners when they perceive that they have mastered a particular task. It is the duty of the teacher to allow student to perceive in their efficacy by providing feedback to understand their level of proficiency. Teachers should ensure that the students have the knowledge and strategies they need to complete the tasks.

Self-efficacy has also been used to predict behavior in various health related situations such as weight loss, quitting smoking, and recovery from heart attack. In relation to exercise science, self-efficacy has produced some of the most consistent results revealing an increase in participation in exercise.

5.9 HEALTH ACTION PROCESS APPROACH

The **health action process approach** (**HAPA**) is a psychological theory of health behavior change, developed by Ralf Schwarzer, Professor of Psychology at the Free University of Berlin, Germany.Health behavior change refers to a replacement of health-compromising behaviors (such as sedentary behavior) by health-enhancing behaviors (such as physical exercise). To describe, predict, and explain such processes, theories or models are being developed. Healthbehavioural change theories are designed to examine a set of psychological constructs that jointly aim at explaining what motivates people to change and how they take preventive action.

HAPA is an open framework of various motivational and volitional constructs that are assumed to explain and predict individual changes in health behaviors such as quitting smoking or drinking, and improving physical activity levels, dental hygiene, seat belt use, breast self-examination, dietary

behaviors, and avoiding drunk driving. HAPA suggests that the adoption, initiation, and maintenance of health behaviors should be conceived of as a structured process including a motivation phase and a volition phase. The former describes the intention formation while the latter refers to planning, and action (initiative, maintenance, recovery). The model emphasizes the particular role of perceived self-efficacy at different stages of health behavior change.

Meaing

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Five Principles

HAPA has five major principles that make it distinct from other models.

Principle 1: Motivation and volition. The first principle suggests that one should divide the health behavior change process into two phases. There is a switch of mindsets when people move from deliberation to action. First comes the motivation phase in which people develop their intentions. Afterwards, they enter the volition phase.

Principle 2: Two volitional phases. In the volition phase there are two groups of individuals: those who have not yet translated their intentions into action, and those who have. There are inactive as well as active persons in this phase. In other words, in the volitional phase one finds intenders as well as actors who are characterized by different psychological states. Thus, in addition to health behavior change as a continuous process, one can also create three categories of people with different mindsets depending on their current point of residence within the course of health behavior change: preintenders, intenders, and actors. The assessment of stages is done by behavior-specific stage algorithms.

Principle 3: Postintentional planning. Intenders who are in the volitional preactional stage are motivated to change, but do not act because they might lack the right skills to translate their intention into action. Planning is a key strategy at this point. Planning serves as an operative mediator between intentions and behavior.

Principle 4: Two kinds of mental simulation. Planning can be divided into action planning and coping planning. Action planning pertains to the when, where, and how of intended action. Coping planning includes the anticipation of barriers and the design of alternative actions that help to attain one's goals in spite of the impediments. The separation of the planning construct into two constructs, action planning and coping planning, has been found useful as studies have confirmed the discriminant validity of such a distinction. Action

planning seems to be more important for the initiation of health behaviors, whereas coping planning is required for the initiation and maintenance of actions as well.

Principle 5: Phase-specific self-efficacy. Perceived self-efficacy is required throughout the entire process. However, the nature of self-efficacy differs from phase to phase. This difference relates to the fact that there are different challenges as people progress from one phase to the next one. Goal setting, planning, initiation, action, and maintenance pose challenges that are not of the same nature. Therefore, one should distinguish between preactional self-efficacy, coping self-efficacy, and recovery self-efficacy. Sometimes the terms task self-efficacy instead of preaction self-efficacy, and maintenance self-efficacy instead of coping and recovery self-efficacy are preferred.

Psychological interventions

When it comes to the design of interventions, one can consider identifying individuals who reside either at the motivational stage or the volitional stage. Then, each group becomes the target of a specific treatment that is tailored to this group. Moreover, it is theoretically meaningful and has been found useful to subdivide further the volitional group into those who perform and those who only intend to perform. In the postintentional preactional stage, individuals are labeled "intenders", whereas in the actional stage they are labeled "actors". Thus, a suitable subdivision within the health behavior change process yields three groups: nonintenders, intenders, and actors. The term "stage" in this context was chosen to allude to the stage theories, but not in the strict definition that includes irreversibility and invariance. The terms "phase" or "mindset" may be equally suitable for this distinction. The basic idea is that individuals pass through different mindsets on their way to behavior change. Thus, interventions may be most efficient when tailored to these particular mindsets. For example, nonintenders are supposed to benefit from confrontation with outcome expectancies and some level of risk communication. They need to learn that the new behavior (e.g., becoming physically active) has positive outcomes (e.g., well-being, weight loss, fun) as opposed to the negative outcomes that accompany the current (sedentary) behavior (such as developing an illness or being unattractive). In contrast, intenders should not benefit from such a treatment because, after setting a goal, they have already moved beyond this mindset. Rather, they should benefit from planning to translate their intentions into action. Finally, actors do not need any treatment at all unless one wants to improve their relapse prevention skills. Then, they should be prepared for particular high-risk situations in which lapses are imminent. Preparation can be exercised by teaching them to anticipate such situations and by acquiring the necessary levels of perceived recovery self-efficacy. There are quite a few randomized controlled trials that have examined the notion of stage-matched interventions based on HAPA, for example in the context of dietary behaviors, physical activity, and dental hygiene.

5.10 TRANS THEORETICAL CHANGE MODEL

The transtheoretical model of behavior change is an integrative theory of therapy that assesses an individual's readiness to act on a new healthier behavior, and provides strategies, or processes of change to guide the individual. The model is composed of constructs such as: stages of change, processes of change, levels of change, self-efficacy, and decisional balance.

The transtheoretical model is also known by the abbreviation "TTM" and sometimes by the term "stages of change", although this latter term is a synecdoche since the stages of change are only one part of the model along with processes of change, levels of change, etc. It has been called "arguably the dominant model of health behaviour change, having received unprecedented research attention, yet it has simultaneously attracted criticism".

Definition

The transtheoretical model of behavior change is an integrative theory of therapy that assesses an individual's readiness to act on a new healthier behavior, and provides strategies, or processes of change to guide the individual.

Stages of change

This construct refers to the temporal dimension of behavioural change. In the transtheoretical model, change is a "process involving progress through a series of stages":

- Precontemplation ("not ready") – "People are not intending to take action in the foreseeable future, and can be unaware that their behaviour is problematic"
- Contemplation ("getting ready") – "People are beginning to recognize that their behaviour is problematic, and start to look at the pros and cons of their continued actions"
- Preparation ("ready") – "People are intending to take action in the immediate future, and may begin taking small steps toward behaviour change"
- Action – "People have made specific overt modifications in modifying their problem behaviour or in acquiring new healthy behaviours"
- Maintenance – "People have been able to sustain action for at least six months and are working to prevent relapse"
- Termination – "Individuals have zero temptation and they are sure they will not return to their old unhealthy habit as a way of coping"

In addition, the researchers conceptualized "Relapse" (recycling) which is not a stage in itself but rather the "return from Action or Maintenance to an earlier stage".

The quantitative definition of the stages of change (see below) is perhaps the most well-known feature of the model. However it is also one of the most critiqued, even in the field of smoking cessation, where it was originally

formulated. It has been said that such quantitative definition (i.e. a person is in preparation if he intends to change within a month) does not reflect the nature of behaviour change, that it does not have better predictive power than simpler questions (i.e. "do you have plans to change..."), and that it has problems regarding its classification reliability.[18]

Communication theorist and sociologist Everett Rogers suggested that the stages of change are analogues of the stages of the innovation adoption process in Rogers' theory ofdiffusion of innovations.

Details of each stage

Stages of change

Stage	*Precontemplation*	*Contemplation*	*Preparation*	*Action*	*Maintenance*	*Relapse*
Standard time	more than 6 months	in the next 6 months	in the next month	now	at least 6 months	any time

Stage 1: Precontemplation (not ready)

People at this stage do not intend to start the healthy behavior in the near future (within 6 months), and may be unaware of the need to change. People here learn more about healthy behavior: they are encouraged to think about the pros of changing their behavior and to feel emotions about the effects of their negative behavior on others.

Precontemplators typically underestimate the pros of changing, overestimate the cons, and often are not aware of making such mistakes.

One of the most effective steps that others can help with at this stage is to encourage them to become more mindful of their decision making and more conscious of the multiple benefits of changing an unhealthy behavior.

Stage 2: Contemplation (getting ready)

At this stage, participants are intending to start the healthy behavior within the next 6 months. While they are usually now more aware of the pros of changing, their cons are about equal to their Pros. This ambivalence about changing can cause them to keep putting off taking action.

People here learn about the kind of person they could be if they changed their behavior and learn more from people who behave in healthy ways.

Others can influence and help effectively at this stage by encouraging them to work at reducing the cons of changing their behavior.

Stage 3: Preparation (ready)

People at this stage are ready to start taking action within the next 30 days. They take small steps that they believe can help them make the healthy behavior a part of their lives. For example, they tell their friends and family that they want to change their behavior.

People in this stage should be encouraged to seek support from friends they trust, tell people about their plan to change the way they act, and think about how they would feel if they behaved in a healthier way. Their number one concern is: when they act, will they fail? They learn that the better prepared they are, the more likely they are to keep progressing.

Stage 4: Action (current action)

People at this stage have changed their behavior within the last 6 months and need to work hard to keep moving ahead. These participants need to learn how to strengthen their commitments to change and to fight urges to slip back.

People in this stage progress by being taught techniques for keeping up their commitments such as substituting activities related to the unhealthy behavior with positive ones, rewarding themselves for taking steps toward changing, and avoiding people and situations that tempt them to behave in unhealthy ways.

Stage 5: Maintenance (monitoring)

People at this stage changed their behavior more than 6 months ago. It is important for people in this stage to be aware of situations that may tempt them to slip back into doing the unhealthy behavior—particularly stressful situations.

It is recommended that people in this stage seek support from and talk with people whom they trust, spend time with people who behave in healthy ways, and remember to engage in healthy activities (such as exercise and deep relaxation) to cope with stress instead of relying on unhealthy behavior.

Relapse (recycling)

Relapse in the TTM specifically applies to individuals who successfully quit smoking or using drugs or alcohol, only to resume these unhealthy behaviors. Individuals who attempt to quit highly addictive behaviors such as drug, alcohol, and tobacco use are at particularly high risk of a relapse. Achieving a long-term behavior change often requires ongoing support from family members, a health coach, a physician, or another motivational source. Supportive literature and other resources can also be helpful to avoid a relapse from happening.

Processes of change

The 10 processes of change are "covert and overt activities that people use to progress through the stages".

To progress through the early stages, people apply cognitive, affective, and evaluative processes. As people move toward Action and Maintenance, they rely more on commitments, counter conditioning, rewards, environmental controls, and support.

Prochaska and colleagues state that their research related to the transtheoretical model shows that interventions to change behavior are more effective if they are "stage-matched", that is, "matched to each individual's stage of change".

In general, for people to progress they need:

- A growing awareness that the advantages (the "pros") of changing outweigh the disadvantages (the "cons")—the TTM calls this *decisional balance*.
- Confidence that they can make and maintain changes in situations that tempt them to return to their old, unhealthy behavior—the TTM calls this *self-efficacy*.
- Strategies that can help them make and maintain change—the TTM calls these *processes of change*.

The ten processes of change include:

1. Consciousness-raising (Get the facts) — increasing awareness via information, education, and personal feedback about the healthy behavior.
2. Dramatic relief (Pay attention to feelings) — feeling fear, anxiety, or worry because of the unhealthy behavior, or feeling inspiration and hope when hearing about how people are able to change to healthy behaviors.
3. Self-reevaluation (Create a new self-image) — realizing that the healthy behavior is an important part of who they want to be.
4. Environmental reevaluation (Notice your effect on others) — realizing how their unhealthy behavior affects others and how they could have more positive effects by changing.
5. Social liberation (Notice public support) — realizing that society is supportive of the healthy behavior.
6. Self-liberation (Make a commitment) — believing in one's ability to change and making commitments and re-commitments to act on that belief.
7. Helping relationships (Get support) — finding people who are supportive of their change.
8. Counterconditioning (Use substitutes) — substituting healthy ways of acting and thinking for unhealthy ways.
9. Reinforcement management (Use rewards) — increasing the rewards that come from positive behavior and reducing those that come from negative behavior.
10. Stimulus control (Manage your environment) — using reminders and cues that encourage healthy behavior and avoiding places that don't.

Levels of change

This core construct identifies the depth or complexity of presenting problems according to five levels of increasing complexity. Different therapeutic

approaches are recommended for each level as well as for each stage of change. The levels are:

1. Symptom/situational problems: e.g., motivational interviewing, behavior therapy, exposure therapy
2. Current maladaptive cognitions: e.g., Adlerian therapy, cognitive therapy, rational emotive therapy
3. Current interpersonal conflicts: e.g., Sullivanian therapy, interpersonal therapy
4. Family/systems conflicts: e.g., strategic therapy, Bowenian therapy, structural family therapy
5. Long-term intrapersonal conflicts: e.g., psychoanalytic therapies, existential therapy, Gestalt therapy

5.11 MODELS OF PREVENTION

These are: religious, biomedical, psychosomatic, humanistic, existential and transpersonal. ... The religious, humanistic and transpersonal models could be considered as health models, the biomedical, psychosomatic and existential models as disease or illness models.

Selected theories and models that are used for health promotion and diseaseprevention programs include:

- Ecological Models.
- The Health Belief Model.
- Stages of Change Model (Transtheoretical Model)
- Social Cognitive Theory.
- Theory of Reasoned Action/Planned Behavior.

Prevention Strategy: Types of Prevention

In general, preventive care refers to measures taken to prevent diseases instead of curing or treating the symptoms. The three levels of preventive care—primary, secondary, and tertiary care—are detailed below:

Primary Prevention

Primary prevention aims to avoid the development of a disease or disability in healthy individuals.[2] Most population-based health promotion activities, such as encouraging less consumption of sugars to reduce caries risk, are primary preventive measures. Other examples of primary prevention in medicine and dentistry include the use of fluoridated toothpaste, and vaccinations for infectious diseases like measles, mumps, rubella, and polio.

Secondary Prevention

The focus of secondary prevention is early disease detection, making it possible to prevent the worsening of the disease and the emergence of

symptoms, or to minimize complications and limit disabilities before the disease becomes severe.[2] Secondary prevention also includes the detection of disease in asymptomatic patients with screening or diagnostic testing and preventing the spread of communicable diseases. Examples in dentistry and medicine include screening for caries, periodontal screening and recording for periodontal disease, and screening for breast and cervical cancer.

Tertiary Prevention

The goal of tertiary prevention is to reduce the negative impact of an already-established disease by restoring function and reducing disease-related complications.[2] Tertiary prevention also aims to improve the quality of life for people with disease. In medicine and dentistry, tertiary prevention measures include the use of amalgam and composite fillings for dental caries, replacement of missing teeth with bridges, implants, or dentures, or insulin therapy for Type II diabetes.

Three Levels of Health Promotion/Disease Prevention

Levels of Prevention

Three broad categories of determinants of human behavior will be discussed in this study session and you will have an opportunity to learn about the influence of these factors in determining human behavior.

Prevention, as it relates to health, is really about avoiding disease before it starts. It has been defined as the plans for, and the measures taken, to prevent the onset of a disease or other health problem before the occurrence of the undesirable health event. There are three distinct levels of prevention.

Primary prevention—those preventive measures that prevent the onset of illness or injury before the disease process begins.

- Examples include immunization and taking regular exercise.

Secondary prevention—those preventive measures that lead to early diagnosis and prompt treatment of a disease, illness or injury to prevent more severe problems developing. Here health educators such as Health Extension Practitioners can help individuals acquire the skills of detecting diseases in their early stages.

- Examples include screening for high blood pressure and breast self-examination.

Tertiary prevention—those preventive measures aimed at rehabilitation following significant illness. At this level health services workers can work to retrain, re-educate and rehabilitate people who have already developed an impairment or disability.

Read the list of the three levels of prevention again. Think about your experience of health education, whether as an educator or recipient of health education.

- How do you think health education can help with the prevention of disease?
- Do you think it will operate at all these levels?
- Note an example of possible health education interventions at each level where you think health education can be applied.

Health Education can be applied at all three levels of disease prevention and can be of great help in maximizing the gains from preventive behavior**.**

- For example at the primary prevention level — you could educate people to practice some of the preventive behaviors, such as having a balanced diet so that they can protect themselves from developing diseases in the future.
- At the secondary level, you could educate people to visit their local health center when they experience symptoms of illness, such as fever, so they can get early treatment for their health problems.
- At the tertiary level, you could educate people to take their medication appropriately and find ways of working towards rehabilitation from significant illness or disability.

You have learned that:

- Primary prevention includes those preventive measures that come before the onset of illness or injury and before the disease process begins. Examples include immunization and taking regular exercise to prevent health problems developing in the future.
- Secondary prevention includes those preventive measures that lead to early diagnosis and prompt treatment of a disease, illness or injury. This should limit disability, impairment or dependency and prevent more severe health problems developing in the future.
- Tertiary prevention includes those preventive measures aimed at rehabilitation following significant illness. At this level health educators work to retrain, re-educate and rehabilitate the individual who has already had an impairment or disability.

5.12 TERMINOLOGIES

1.Health 2. Protection 3. Social 4. Action 5. Cognitive

5.13 MODEL QUESTIONS

1. Explain the models of Motivation theory?
2. Discuss the Health-Locus of Control?
3. Discuss the Health-Belief model?

4. Bring out the Limitations of HBM?
5. Explain the Social cognitive Theories?

5.14 REFERENCE BOOKS

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UNIT –VI STRESS MANAGEMENT

Structure

6.1 INTRODUCTION

Stress management is a wide spectrum of techniques and psychotherapies aimed at controlling a person's level of stress, especially chronic stress, usually for the purpose of and for the motive of improving everyday functioning. In this context, the term 'stress' refers only to a stress with significant negative consequences, or distress in the terminology advocated by Hans Selye, rather than what he calls eustress, a stress whose consequences are helpful or otherwise.

Stress produces numerous physical and mental symptoms which vary according to each individual's situational factors. These can include physical health decline as well asdepression. The process of stress management is named as one of the keys to a happy and successful life in modern society. Although life provides numerous demands that can prove difficult to handle, stress management provides a number of ways to manage anxiety and maintain overall well-being.

Despite stress often being thought of as a subjective experience, levels of stress are readily measurable, using various physiological tests, similar to those used in polygraphs.

Many practical stress management techniques are available, some for use by health professionals and others, for self-help, which may help an individual reduce their levels of stress, provide positive feelings of control over one's life and promote general well-being. Other stress reducing techniques involve adding a daily exercise routine, spending quality time with family and pets, meditation, finding a hobby, writing your thoughts, feelings, and moods down and also speaking with a trusted one about what is bothering you. It is very important to keep in mind that not all techniques are going to work the same for everyone, that is why trying different stress managing techniques is crucial in order to find what techniques work best for you. An example of this would be, two people on a roller coaster one can be screaming grabbing on to the bar while the other could be laughing while their hands are up in the air (Nisson). This is a perfect example of how stress effects everyone differently that is why they might need a different treatment. These techniques do not require doctors approval but seeing if a doctors technique works better for you is also very important.

Evaluating the effectiveness of various stress management techniques can be difficult, as limited research currently exists. Consequently, the amount and quality of evidence for the various techniques varies widely. Some are accepted as effective treatments for use in psychotherapy, while others with less evidence favoring them are consideredalternative therapies. Many professional organizations exist to promote and provide training in conventional or alternative therapies.

There are several models of stress management, each with distinctive explanations of mechanisms for controlling stress. Much more research is necessary to provide a better understanding of which mechanisms actually operate and are effective in practice.

Meaning

Stress management is a wide spectrum of techniques and psychotherapies aimed at controlling a person's level of stress, especially chronic stress, usually for the purpose of and for the motive of improving everyday functioning

6.2 MODELS

The generalized models are:

- The emergency response/fight-or-flight response by Walter Cannon (1914, 1932)
- General Adaptation Syndrome by Hans Selye (1936)
- Stress Model of Henry and Stephens (1977)
- Transactional (or cognitive) Stress Model / stress model of Lazarus after Lazarus (1974)
- Theory of resource conservation by Stevan Hobfoll (1988, 1998; Hobfoll & Buchwald, 2004)

Transactional model

Transactional Model of Stress and Coping of Richard Lazarus

Richard Lazarus and Susan Folkman suggested in 1981 that stress can be thought of as resulting from an "imbalance between demands and resources" or as occurring when "pressure exceeds one's perceived ability to cope". Stress management was developed and premised on the idea that stress is not a direct response to a stressor but rather one's resources and ability to cope mediate the stress response and are amenable to change, thus allowing stress to be controllable.[4]

Among the many stressors mentioned by employees, these are the most common:

- Conflicts in company
- The way employees are treated by their bosses/supervisors or company
- Lack of job security
- Company policies
- Co-workers who don't do their fair share
- Unclear expectations
- Poor communication
- Not enough control over assignments
- Inadequate pay or benefits
- Urgent deadlines
- Too much work
- Long hours
- Uncomfortable physical conditions
- Relationship conflicts
- Co-workers making careless mistakes
- Dealing with rude customers
- Lack of co-operation
- How the company treats co-workers

In order to develop an effective stress management program, it is first necessary to identify the factors that are central to a person controlling his/her stress and to identify the intervention methods which effectively target these factors. Lazarus and Folkman's interpretation of stress focuses on the transaction between people and their external environment (known as the Transactional Model). The model contends that stress may not be a stressor if the person does not perceive the stressor as a threat but rather as positive or even challenging. Also, if the person possesses or can use adequate coping skills, then stress may not actually be a result or develop because of the stressor. The model proposes that people can be taught to manage their stress and cope with their stressors. They may learn to change their perspective of the stressor and provide them with the ability and confidence to improve their lives and handle all of the types of stressors.

Health realization/innate health model

The health realization/innate health model of stress is also founded on the idea that stress does not necessarily follow the presence of a potential stressor. Instead of focusing on the individual's appraisal of so-called stressors in

relation to his or her own coping skills (as the transactional model does), the health realization model focuses on the nature of thought, stating that it is ultimately a person's thought processes that determine the response to potentially stressful external circumstances. In this model, stress results from appraising oneself and one's circumstances through a mental filter of insecurity and negativity, whereas a feeling of well-being results from approaching the world with a "quiet mind".

This model proposes that helping stressed individuals understand the nature of thought—especially providing them with the ability to recognize when they are in the grip of insecure thinking, disengage from it, and access natural positive feelings—will reduce their stress.

Techniques

High demand levels load the person with extra effort and work. A new time schedule is worked up, and until the period of abnormally high, personal demand has passed, the normal frequency and duration of former schedules is limited.

Many techniques cope with the stresses life brings. Some of the following ways reduce a lower than usual stress level, temporarily, to compensate the biological issues involved; others face the stressor at a higher level of abstraction:

- Autogenic training
- Social activity
- Cognitive therapy
- Conflict resolution
- Cranial release technique
- Getting a hobby
- Meditation
- Mindfulness
- Music as a coping strategy
- Deep breathing
- Yoga Nidra
- Nootropics
- Reading novels
- Prayer
- Relaxation techniques
- Artistic expression
- Fractional relaxation
- Humour
- Physical exercise
- Progressive relaxation
- Spas
- Somatics training
- Spending time in nature

- Stress balls
- Natural medicine
- Clinically validated alternative treatments
- Time management
- Planning and decision making
- Listening to certain types of relaxing music
- Spending quality time with pets

Techniques of stress management will vary according to the philosophical paradigm.

Stress prevention and resilience

Although many techniques have traditionally been developed to deal with the consequences of stress, considerable research has also been conducted on the prevention of stress, a subject closely related to psychological resilience-building. A number of self-help approaches to stress-prevention and resilience-building have been developed, drawing mainly on the theory and practice of cognitive-behavioral therapy.

Measuring stress

Levels of stress can be measured. One way is through the use of psychological testing: *The Holmes and Rahe Stress Scale* [two scales of measuring stress] is used to rate stressful life events, while the DASS [Depression Anxiety Stress Scales] contains a scale for stress based on self-report items. Changes in blood pressure and galvanic skin response can also be measured to test stress levels, and changes in stress levels. A digital thermometer can be used to evaluate changes in skin temperature, which can indicate activation of the fight-or-flight response drawing blood away from the extremities. Cortisol is the main hormone released during a stress response and measuring cortisol from hair will give a 60- to 90-day baseline stress level of an individual. This method of measuring stress is currently the most popular method in the clinic.

Effectiveness

Stress management has physiological and immune benefits.

Positive outcomes are observed using a combination of non-drug interventions:

- treatment of anger or hostility,
- autogenic training
- talking therapy (around relationship or existential issues)
- biofeedback
- cognitive therapy for anxiety or clinical depression

6.3 TYPES

Acute stress

Acute stress is the most common form of stress among humans worldwide.

Acute stress deals with the pressures of the near future or dealing with the very recent past. This type of stress is often misinterpreted for being a negative connotation. While this is the case in some circumstances, it is also a good thing to have some acute stress in life. Running or any other form of exercise is considered an acute stressor. Some exciting or exhilarating experiences such as riding a roller coaster is an acute stress but is usually very enjoyable. Acute stress is a short term stress and as a result, does not have enough time to do the damage that long term stress causes.

Chronic stress

Chronic stress is unlike acute stress. It has a wearing effect on people that can become a very serious health risk if it continues over a long period of time. Chronic stress can lead to memory loss, damage spatial recognition and produce a decreased drive of eating. The severity varies from person to person and also gender difference can be an underlying factor. Women are able to take longer durations of stress than men without showing the same maladaptive changes. Men can deal with shorter stress duration better than women can but once males hit a certain threshold, the chances of them developing mental issues increases drastically.

Workplace

All of us have some position in society, in the workplace, within the family, economic status and so on. Unfortunately, most of us are unwilling to accept where we are. Instead, we wish we were somewhere else, usually at a higher position. Managing that stress becomes vital in order to keep up job performance as well as relationship with co-workers and employers. For some workers, changing the work environment relieves work stress. Making the environment less competitive between employees decreases some amounts of stress. However, each person is different and some people like the pressure to perform better. Stress in the workplace doesn't always have to be negatively viewed. Stress when delivered or viewed accordingly the performance of the worker can be good. The stressors may vary but stress can as a result of mental stability can be used in a more productive manor instead of a negative one. A stressor or influence of stress in the workplace can be Organization Commitment, which is the degree of a workers psyche mainly being the I.D. (A person's personality that strives to fulfil all needs and desires) being in a state of Affective, Continuance, or Normative. A worker who wants to stay at the company because they enjoy the job this is Affective, the worker who needs to stay at the job because of economic or social issues, this is Continuance, and the worker who feels obligated to stay on the job because of a raise or the boss is a good friend of theirs, this is Normative. Each of these Org. Commitments can cause good or bad stress; that is why managing or strengthening one's mental stability can make stress a positive and not a negative while in the workplace.

Salary can be an important concern of employees. Salary can affect the way people work because they can aim for promotion and in result, a higher salary. This can lead to chronic stress.

Cultural differences have also shown to have some major effects on stress coping problems. Eastern Asian employees may deal with certain work situations differently from how a Western North American employee would.

In order to manage stress in the workplace, employers can provide stress managing programs such as therapy, communication programs, and a more flexible work schedule.

Stress management programs

Many businesses today have begun to use stress management programs for employees who are having trouble adapting to stress at the workplace or at home. Some companies provide special equipments adapting to stress at the workplace to their employees, like coloring diaries and stress relieving gadgets. Many people have spill over stress from home into their working environment. There are a couple of ways businesses today try to alleviate stress on their employees. One way is individual intervention. This starts off by monitoring the stressors in the individual. After monitoring what causes the stress, next is attacking that stressor and trying to figure out ways to alleviate them in any way. Developing social support is vital in individual intervention, being with others to help you cope has proven to be a very effective way to avoid stress. Avoiding the stressors altogether is the best possible way to get rid of stress but that is very difficult to do in the workplace. Changing behavioral patterns, may in turn, help reduce some of the stress that is put on at work as well.

Employee assistance programs can include in-house counseling programs on managing stress. Evaluative research has been conducted on EAPs that teach individual stress control and inoculation techniques such as relaxation, biofeedback, and cognitive restructuring. Studies show that these programs can reduce the level of physiological arousal associated with high stress. Participants who master behavioral and cognitive stress-relief techniques report less tension, fewer sleep disturbances, and an improved ability to cope with workplace stressors.

Another way of reducing stress at work is by simply changing the workload for an employee. Some may be too overwhelmed that they have so much work to get done, or some also may have such little work that they are not sure what to do with themselves at work. Improving communications between employees also sounds like a simple approach, but it is very effective for helping reduce stress. Sometimes making the employee feel like they are a bigger part of the company, such as giving them a voice in bigger situations shows that you trust them and value their opinion. Having all the employees mesh well together is a very underlying factor which can take away much of workplace stress. If employees fit well together and feed off of each other, the chances of lots of stress is very minimal. Lastly, changing the physical

qualities of the workplace may reduce stress. Changing things such as the lighting, air temperature, odor, and up to date technology.

Intervention is broken down into three steps: primary, secondary, tertiary. Primary deals with eliminating the stressors altogether. Secondary deals with detecting stress and figuring out ways to cope with it and improving stress management skills. Finally, tertiary deals with recovery and rehabbing the stress altogether. These three steps are usually the most effective way to deal with stress not just in the workplace, but overall.

Measurement systems

The most commonly used stress measurement systems are primarily rating scale-based. These systems tend to be complex, containing multiple levels with a variety of sections, to attempt to capture the many stressors present in the aviation industry. Different systems may be utilised in different operational specialties.

- The Perceived Stress Scale (PSS) – The PSS is a widely used subjective tool for measuring stress levels. It consists of 10 questions, and asks participants to rate, on a five-point scale, how stressed they felt after a certain event. All 10 questions are summed to obtain a total score from 0 to 40. In the aviation industry, for example, it has been used with flight training students to measure how stressed they felt after flight training exercises.
- The Coping Skills Inventory – This inventory measures aviators' skills for coping with stress. This is another subjective measure, asking participants to rate, on a five-point scale, the extent to which they use eight common coping skills: Substance abuse, Emotional support, Instrumental support (help with tangible things, like child care, finances, or task sharing), Positive reframing (changing one's thinking about a negative event, and thinking of it as a positive instead), Self-blame, Planning, Humour and Religion. An individual's total score indicates the extent to which he or she is using effective, positive coping skills (like humor and emotional support); ineffective, negative coping skills (like substance abuse and self-blame); and where the individual could improve.
- The Subjective Workload Assessment Technique (SWAT) – SWAT is a rating system used to measure individuals' perceived mental workload while performing a task, like developing instruments in a lab, multitasking aircraft duties, or conducting air defense. SWAT combines measurements and scaling techniques to develop a global rating scale.

6.4 STRESS REACTIONS

The nature of stress was described in multiple ways: acute, episodic or intermittent, and chronic. Different types of stressors emerged, such as event, situation, cue, and condition, which then fell into categories based on locus of control, predictability, tone, impact, and duration.

In psychology, stress is a feeling of emotional strain and pressure. Stress is a type of psychological pain. Small amounts of stress may be desired, beneficial,

and even healthy. Positive stress helps improve athletic performance. It also plays a factor inmotivation, adaptation, and reaction to the environment. Excessive amounts of stress, however, may lead to bodily harm. Stress can increase the risk of strokes, heart attacks, ulcers, and mental illnesses such as depression and also aggravation of a pre-existing condition.

Stress can be external and related to the environment, but may also be caused by internal perceptions that cause an individual to experience anxiety or other negative emotions surrounding a situation, such as pressure, discomfort, etc., which they then deem stressful.

Humans experience stress, or perceive things as threatening, when they do not believe that their resources for coping with obstacles (stimuli, people, situations, etc.) are enough for what the circumstances demand. When people think the demands being placed on them exceed their ability to cope, they then perceive stress.

Causes

Neutrality of stressors

Stress is a non-specific response. It is neutral, and what varies is the degree of response. It is all about the context of the individual and how they perceive the situation. Selye defined stress as “the nonspecific (that is, common) result of any demand upon the body, be the effect mental or somatic.” This includes the medical definition of stress as a physical demand and the colloquial definition of stress as a psychological demand. A stressor is inherently neutral meaning that the same stressor can cause either distress or eustress. It is individual differences and responses that induce either distress or eustress.

Types of stressors

A stressor is any event, experience, or environmental stimulus that causes stress in an individual. These events or experiences are perceived as threats or challenges to the individual and can be either physical or psychological. Researchers have found that stressors can make individuals more prone to both physical and psychological problems, including heart disease and anxiety.

Stressors are more likely to affect an individual's health when they are "chronic, highly disruptive, or perceived as uncontrollable". In psychology, researchers generally classify the different types of stressors into four categories:

1) crises/catastrophes

2) major life events

3) daily hassles/microstressors,

and 4) ambient stressors.

1.Crises/catastrophes

This type of stressor is unforeseen and unpredictable and, as such, is completely out of the control of the individual. Examples of crises and

catastrophes include: devastatingnatural disasters, such as major floods or earthquakes, wars, etc. Though rare in occurrence, this type of stressor typically causes a great deal of stress in a person's life. A study conducted by Stanford University found that after natural disasters, those affected experienced a significant increase in stress level. Combat stress is a widespread acute and chronic problem. With the rapid pace and the urgency of firing first, tragic episodes of accidentally killing friendly forces ("brother" killing "brother" or fratricide) may happen. Prevention requires stress reduction, emphasis on vehicle and other identification training, awareness of the tactical situation, and continual risk analysis by leaders at all echelons.

2.Major life events

Common examples of major life events include: marriage, going to college, death of a loved one, birth of a child, divorce, moving houses, etc. These events, either positive or negative, can create a sense of uncertainty and fear, which will ultimately lead to stress. For instance, research has found the elevation of stress during the transition from high school to university, with college freshmen being about two times more likely to be stressed than final year students. Research has found major life events are somewhat rare to be major causes of stress, due to its rare occurrences.

The length of time since occurrence and whether or not it is a positive or negative event are factors in whether or not it causes stress and how much stress it causes. Researchers have found that events that have occurred within the past month generally are not linked to stress or illness, while chronic events that occurred more than several months ago are linked to stress and illness and personality change. Additionally, positive life events are typically not linked to stress – and if so, generally only trivial stress – while negative life events can be linked to stress and the health problems that accompany it. However, positive experiences and positive life changes can predict decreases in neuroticism.

3.Daily hassles/microstressors

This category includes daily annoyances and minor hassles. Examples include: making decisions, meeting deadlines at work or school, traffic jams, encounters with irritating personalities, etc. Often, this type of stressor includes conflicts with other people. Daily stressors, however, are different for each individual, as not everyone perceives a certain event as stressful. For example, most people find public speaking to be stressful, nevertheless, a seasoned politician most likely will not.

Daily hassles are the most frequently occurring type of stressor in most adults. The high frequency of hassles causes this stressor to have the most physiological effect on an individual. Carolyn Aldwin, Ph.D., conducted a study at the Oregon State University that examined the perceived intensity of daily hassles on an individual's mortality. Aldwin's study concluded that there is a strong correlation between individuals who rate their hassles as very

intense and a high level of mortality. One's perception of their daily stressors can have a modulating effect on the physiological impact of daily stressors.

There are three major psychological types of conflicts that can cause stress.

- The approach-approach conflict, occurs when a person is choosing between two equally attractive options, i.e. whether to go see a movie or to go see a concert.
- The avoidance-avoidance conflict, occurs where a person has to choose between two equally unattractive options, for example, to take out a second loan with unappealing terms to pay off the mortgage or to face foreclosure on one's house.
- The approach-avoidance conflict, occurs when a person is forced to choose whether or not to partake in something that has both attractive and unattractive traits – such as whether or not to attend an expensive college (meaning taking out loans now, but also meaning a quality education and employment after graduation).

Travel-related stress results from three main categories: lost time, surprises (an unforeseen event such as lost or delayed baggage) and routine breakers (inability to maintain daily habits).

4. Ambient stressors

As their name implies, these are global (as opposed to individual) low-grade stressors that are a part of the background environment. They are defined as stressors that are "chronic, negatively valued, non-urgent, physically perceptible, and intractable to the efforts of individuals to change them". Typical examples of ambient stressors are pollution, noise, crowding, and traffic. Unlike the other three types of stressor, ambient stressors can (but do not necessarily have to) negatively impact stress without conscious awareness. They are thus low on what Stokols called "perceptual salience"

Organisational stressors

Studies conducted in military and combat fields show that some of the most potent stressors can be due to personal organisational problems in the unit or on the home front. Stress due to bad organisational practices is often connected to "Toxic Leadership", both in companies and in governmental organisations.

Physical effects

The body responds to stress in many ways. Readjusting chemical levels is just one of them. Here are some examples of adjustments and changes.

In terms of measuring the body's response to stress, psychologists tend to use Hans Selye's general adaptation syndrome. This model is also often referred to as the classic stress response, and it revolves around the concept of homeostasis. General adaptive syndrome occurs in three stages:

1. **The alarm reaction**. This stage occurs when the stressor is first presented. The body begins to gather resources to deal with the

stressor. The hypothalamic-pituitary-adrenal axis and sympathetic nervous system are activated, resulting in the release of hormones from the adrenal gland such as cortisol, adrenaline (epinephrine), andnorepinephrine into the bloodstream to adjust bodily processes. These hormonal adjustments increase energy levels, increase muscle tension, reduce sensitivity to pain, slow down the digestive system, and cause a rise in blood pressure. In addition, the Locus coeruleus, a collection of Norepinephrine-containing neurons in the pons of the brainstem whose axons project to various regions of the brain, is involved in releasing Norepinephrine directly onto neurons. High levels of Norepinephrine acting as a neurotransmitter on its receptors expressed on neurons in brain regions, such as the prefrontal cortex is thought to be involved in the effects of stress on executive functions, such as impaired working memory.

2. **The stage of resistance**. The body continues building up resistance throughout the stage of resistance, until either the body's resources are depleted, leading to the exhaustion phase, or the stressful stimulus is removed. As the body uses up more and more of its resources people become increasingly tired and susceptible to illness. This stage is where psychosomatic disorders first begin to appear.
3. **The stage of exhaustion**. The body is completely drained of the hormones and resources it was depending on to manage the stressor. The person now begins to exhibit behaviors such as anxiety, irritability, avoidance of responsibilities and relationships, self-destructive behavior, and poor judgment. If someone is experiencing these symptoms they have a much greater chance of lashing out, damaging relationships, or avoiding social interaction at all.

This physiological stress response involves high levels of sympathetic nervous system activation, often referred to as the "fight or flight" response. The response involves pupil dilation, release of endorphins, increased heart and respiration rates, cessation of digestive processes, secretion of adrenaline, arteriole dilation, and constriction of veins. This high level of arousal is often unnecessary to adequately cope with micro-stressors and daily hassles; yet, this is the response pattern seen in humans, which often leads to health issues commonly associated with high levels of stress.

Changes in the home

Divorce, death, and remarriage are all disruptive events in a household. Although everyone involved is affected by events such as these, it can be most drastically seen in children. Due to their age, children have relatively undeveloped coping skills. For this reason a stressful event may cause some changes in their behavior. Falling in with a new crowd, developing some new and sometimes undesirable habits are just some of the changes stress may trigger in their lives.

A particularly interesting response to stress is talking to an imaginary friend. A child may feel angry with a parent or their peers who they feel brought this change on them. They need someone to talk to but it definitely would not be

the person with whom they are angry. That is when the imaginary friend comes in. They “talk” to this imaginary friend but in doing so they cut off communication with the real people around them.

Theoretical explanations

A multitude of theories have been presented in attempts to explain why exercise effectively reduces stress. One theory, known as the time-out hypothesis, claims that exercise provides distraction from the stressor. The time out hypothesis claims that exercise effectively reduces stress because it gives individuals a break from their stressors. This was tested in a recent study of college women who had identified studying as their primary stressor. The women were then placed under four conditions at varying times: "rest," "studying," "exercising," and "studying while exercising." The stress levels of the participants were measured through self-assessments of stress and anxiety symptoms after each condition. The results demonstrated that the "exercise" condition had the most significant reduction in stress and anxiety symptoms. These results demonstrate the validity of the time-out hypothesis. It is also important to note that exercise provided greater stress reduction than rest.

Mental inhibition/disavowal mechanisms

These mechanisms cause the individual to have a diminished (or in some cases non-existent) awareness about their anxiety, threatening ideas, fears, etc., that come from being conscious of the perceived threat.

- **Displacement** – This is when an individual redirects their emotional feelings about one situation to another, less threatening one.
- **Repression** – Repression occurs when an individual attempts to remove all their thoughts, feelings, and anything related to the upsetting/stressful (perceived) threat out of their awareness in order to be disconnected from the entire situation. When done long enough in a successful way, this is more than just denial.
- **Reaction formation** – An attempt to remove any “unacceptable thoughts” from one's consciousness by replacing them with the exact opposite.

Other inhibition coping mechanisms include undoing, dissociation, denial, projection, and rationalization. Although some people claim that inhibition coping mechanisms may eventually increase the stress level because the problem is not solved, detaching from the stressor can sometimes help people to temporarily release the stress and become more prepared to deal with problems later on.

Active mechanisms

These methods deal with stress by an individual literally taking action, or withdrawing.

- **Acting out** – Often viewed as counter-normative, or problematic behavior. Instead of reflecting or problem-solving, an individual takes maladaptive action.

- **Passive aggression** – When an individual indirectly deals with their anxiety and negative thoughts/feelings stemming from their stress by acting in a hostile or resentful manner towards others. Help-Rejecting Complaining can also be included in this category.

Health promotion

There is an alternative method to coping with stress, in which one works to minimize their anxiety and stress in a preventative manner. If one works towards coping with stress daily, the feeling of stress and the ways in which one deals with it as the external event arises becomes less of a burden.

Suggested strategies to improve stress management include:

1. Regular exercise – set up a fitness program, 3–4 times a week
2. Support systems – to listen, offer advice, and support each other
3. Time management – develop an organizational system
4. Guided imagery and visualization – create a relaxing state of mind
5. Progressive muscle relaxation – loosen tense muscle groups
6. Assertiveness training – work on effective communication
7. Journal writing – express true emotion, self-reflection
8. Stress management in the workplace – organize a new system, switch tasks to reduce own stress.
9. HeartSpeak - a novel method for reducing stress and other stress-related conditions such as anxiousness, depression, and low self-esteem.

Depending on the situation, all of these coping mechanisms may be adaptive, or maladaptive.

Here are some tips to help you keep stress at bay.

1. Keep a positive attitude.
2. Accept that there are events that you cannot control.
3. Be assertive instead of aggressive. ...
4. Learn and practice relaxation techniques; try meditation, yoga, or tai-chi for stress management.
5. Exercise regularly. ...
6. Eat healthy, well-balanced meals.

6.5 IMPORTANT TO MANAGE STRESS

If you're living with high levels of stress, you're putting your entire well-being at risk. Stress wreaks havoc on your emotional equilibrium, as well as your physical health. It narrows your ability to think clearly, function effectively, and enjoy life. It may seem like there's nothing you can do about stress. The bills won't stop coming, there will never be more hours in the day, and your work and family responsibilities will always be demanding. But you have a lot more control than you might think.

Effective stress management helps you break the hold stress has on your life, so you can be happier, healthier, and more productive. The ultimate goal is a balanced life, with time for work, relationships, relaxation, and fun—and the resilience to hold up under pressure and meet challenges head on. But stress management is not one-size-fits-all. That's why it's important to experiment and find out what works best for you. The following stress management tips can help you do that.

Tip 1: Identify the sources of stress in your life

Stress management starts with identifying the sources of stress in your life. This isn't as straightforward as it sounds. While it's easy to identify major stressors such as changing jobs, moving, or a going through a divorce, pinpointing the sources of chronic stress can be more complicated. It's all too easy to overlook how your own thoughts, feelings, and behaviors contribute to your everyday stress levels. Sure, you may know that you're constantly worried about work deadlines, but maybe it's your procrastination, rather than the actual job demands, that is causing the stress.

To identify your true sources of stress, look closely at your habits, attitude, and excuses:

- Do you explain away stress as temporary ("I just have a million things going on right now") even though you can't remember the last time you took a breather?
- Do you define stress as an integral part of your work or home life ("Things are always crazy around here") or as a part of your personality ("I have a lot of nervous energy, that's all")?
- Do you blame your stress on other people or outside events, or view it as entirely normal and unexceptional?

Until you accept responsibility for the role you play in creating or maintaining it, your stress level will remain outside your control.

A stress journal can help you identify the regular stressors in your life and the way you deal with them. Each time you feel stressed, keep track of it in your journal. As you keep a daily log, you will begin to see patterns and common themes. Write down:

- What caused your stress (make a guess if you're unsure)
- How you felt, both physically and emotionally
- How you acted in response
- What you did to make yourself feel better

Tip 2: Practice the 4 A's of stress management

While stress is an automatic response from your nervous system, some stressors arise at predictable times: your commute to work, a meeting with your boss, or family gatherings, for example. When handling such predictable stressors, you can either change the situation or change your reaction. When deciding which option to choose in any given scenario, it's helpful to think of the four A's: avoid, alter, adapt, or accept.

Tip 3: Get moving

When you're stressed, the last thing you probably feel like doing is getting up and exercising. But physical activity is a huge stress reliever—and you don't have to be an athlete or spend hours in a gym to experience the benefits. Exercise releases endorphins that make you feel good, and it can also serve as a valuable distraction from your daily worries.

While you'll get the most benefit from regularly exercising for 30 minutes or more, it's okay to build up your fitness level gradually. Even very small activities can add up over the course of a day. The first step is to get yourself up and moving. Here are some easy ways to incorporate exercise into your daily schedule:

- Put on some music and dance around
- Take your dog for a walk
- Walk or cycle to the grocery store
- Use the stairs at home or work rather than an elevator
- Park your car in the farthest spot in the lot and walk the rest of the way
- Pair up with an exercise partner and encourage each other as you work out
- Play ping-pong or an activity-based video game with your kids

The stress-busting magic of mindful rhythmic exercise

While just about any form of physical activity can help burn away tension and stress, rhythmic activities are especially effective. Good choices include walking, running, swimming, dancing, cycling, tai chi, and aerobics. But whatever you choose, make sure it's something you enjoy so you're more likely to stick with it.

While you're exercising, make a conscious effort to pay attention to your body and the physical (and sometimes emotional) sensations you experience as

you're moving. Focus on coordinating your breathing with your movements, for example, or notice how the air or sunlight feels on your skin. Adding this mindfulness element will help you break out of the cycle of negative thoughts that often accompanies overwhelming stress.

Tip 4: Connect to others



There is nothing more calming than spending quality time with another human being who makes you feel safe and understood. In fact, face-to-face interaction triggers a cascade of hormones that counteracts the body's defensive "fight-or-flight" response. It's nature's natural stress reliever (as an added bonus, it also helps stave off depression and anxiety). So make it a point to connect regularly—and in person—with family and friends.

Keep in mind that the people you talk to don't have to be able to fix your stress. They simply need to be good listeners. And try not to let worries about looking weak or being a burden keep you from opening up. The people who care about you will be flattered by your trust. It will only strengthen your bond.

Of course, it's not always realistic to have a pal close by to lean on when you feel overwhelmed by stress, but by building and maintaining a network of close friends you can improve your resiliency to life's stressors.

Tips for building relationships

1. Reach out to a colleague at work
2. Help someone else by volunteering
3. Have lunch or coffee with a friend
4. Ask a loved one to check in with you regularly
5. Accompany someone to the movies or a concert
6. Call or email an old friend
7. Go for a walk with a workout buddy
8. Schedule a weekly dinner date
9. Meet new people by taking a class or joining a club

10. Confide in a clergy member, teacher, or sports coach

Tip 5: Make time for fun and relaxation

Beyond a take-charge approach and a positive attitude, you can reduce stress in your life by carving out "me" time. Don't get so caught up in the hustle and bustle of life that you forget to take care of your own needs. Nurturing yourself is a necessity, not a luxury. If you regularly make time for fun and relaxation, you'll be in a better place to handle life's stressors.

Set aside leisure time. Include rest and relaxation in your daily schedule. Don't allow other obligations to encroach. This is your time to take a break from all responsibilities and recharge your batteries.

Do something you enjoy every day. Make time for leisure activities that bring you joy, whether it be stargazing, playing the piano, or working on your bike.

Keep your sense of humor. This includes the ability to laugh at yourself. The act of laughing helps your body fight stress in a number of ways.

Take up a relaxation practice. Relaxation techniques such as yoga, meditation, and deep breathing activate the body's relaxation response, a state of restfulness that is the opposite of the fight or flight or mobilization stress response. As you learn and practice these techniques, your stress levels will decrease and your mind and body will become calm and centered.

Tip 6: Manage your time better

Poor time management can cause a lot of stress. When you're stretched too thin and running behind, it's hard to stay calm and focused. Plus, you'll be tempted to avoid or cut back on all the healthy things you should be doing to keep stress in check, like socializing and getting enough sleep. The good news: there are things you can do to achieve a healthier work-life balance.

Don't over-commit yourself. Avoid scheduling things back-to-back or trying to fit too much into one day. All too often, we underestimate how long things will take.

Prioritize tasks. Make a list of tasks you have to do, and tackle them in order of importance. Do the high-priority items first. If you have something particularly unpleasant or stressful to do, get it over with early. The rest of your day will be more pleasant as a result.

Break projects into small steps. If a large project seems overwhelming, make a step-by-step plan. Focus on one manageable step at a time, rather than taking on everything at once.

Delegate responsibility. You don't have to do it all yourself, whether at home, school, or on the job. If other people can take care of the task, why not let them? Let go of the desire to control or oversee every little step. You'll be letting go of unnecessary stress in the process.

Tip 7: Maintain balance with a healthy lifestyle



In addition to regular exercise, there are other healthy lifestyle choices that can increase your resistance to stress.

Eat a healthy diet. Well-nourished bodies are better prepared to cope with stress, so be mindful of what you eat. Start your day right with breakfast, and keep your energy up and your mind clear with balanced, nutritious meals throughout the day.

Reduce caffeine and sugar. The temporary "highs" caffeine and sugar provide often end in with a crash in mood and energy. By reducing the amount of coffee, soft drinks, chocolate, and sugar snacks in your diet, you'll feel more relaxed and you'll sleep better.

Avoid alcohol, cigarettes, and drugs. Self-medicating with alcohol or drugs may provide an easy escape from stress, but the relief is only temporary. Don't avoid or mask the issue at hand; deal with problems head on and with a clear mind.

Get enough sleep. Adequate sleep fuels your mind, as well as your body. Feeling tired will increase your stress because it may cause you to think irrationally.

Tip 8: Learn to relieve stress in the moment

When you're frazzled by your morning commute, stuck in a stressful meeting at work, or fried from another argument with your spouse, you need a way to manage your stress levels *right now*. That's where quick stress relief comes in.

The fastest way to reduce stress is by taking a deep breath and using your senses—what you see, hear, taste, and touch—or through a soothing movement. By viewing a favorite photo, smelling a specific scent, listening to a favorite piece of music, tasting a piece of gum, or hugging a pet, for example, you can quickly relax and focus yourself. Of course, not everyone responds to each sensory experience in the same way. The key to quick stress relief is to experiment and discover the unique sensory experiences that work best for you.

6.6 PAIN AND ITS MANAGEMENT

Pain management, pain medicine, pain control or algiatry, is a branch of medicine employing an interdisciplinary approach for easing the suffering and improving the quality of life of those living with chronic pain. The typical pain management team includes medical practitioners, pharmacists, clinical psychologists, physiotherapists, occupational therapists, physician assistants, nurses, dentists. The team may also include other mental health specialists and massage therapists. Pain sometimes resolves promptly once the underlyingtrauma or pathology has healed, and is treated by one practitioner, with drugs such as analgesics and (occasionally) anxiolytics. Effective management of chronic (long-term) pain, however, frequently requires the coordinated efforts of the pain management team.[3] Effective pain management does not mean total eradication of all pain.

Medicine treats injuries and diseases to support and speed healing, and it treats distressing symptoms such as pain to relieve sufferingduring treatment, healing, and dying. When a painful injury or pathology is resistant to treatment and persists, when pain persists after the injury or pathology has healed, and when medical science cannot identify the cause of pain, the task of medicine is to relieve suffering. Treatment approaches to chronic pain include pharmacological measures, such as analgesics, antidepressants and anticonvulsants, interventional procedures, physical therapy, physical exercise, application of ice or heat, and psychological measures, such as biofeedbackand cognitive behavioral therapy.

Uses

Pain can have many causes and there are many possible treatments for it. In the nursing profession, one common definition of pain is any problem that is "whatever the experiencing person says it is, existing whenever the experiencing person says it does". Different sorts of pain management address different sorts of pain.

Pain management includes patient communication about the pain problem. To define the pain problem, a health care provider will likely ask questions such as these:

- How intense is the pain?

- How does the pain feel?
- Where is the pain?
- What, if anything, makes the pain lessen?
- What, if anything, makes the pain increase?
- When did the pain start?

After asking questions such as these, the health care provider will have a description of the pain. Pain management will then be used to address that pain.

Adverse effects

There are many types of pain management, and each of them have their own benefits, drawbacks, and limits.

A common difficulty in pain management is communication. People experiencing pain may have difficulty recognizing or describing what they feel and how intense it is. Health care providers and patients may have difficulty communicating with each other about how pain responds to treatments. There is a continuing risk in many types of pain management for the patient to take treatment which is less effective than needed or which causes other difficulty and side effects. Some treatments for pain can be harmful if overused. A goal of pain management for the patient and their health care provider to identify the amount of treatment which addresses the pain but which is not too much treatment.

Another problem with pain management is that pain is the body's natural way of communicating a problem. Pain is supposed to resolve as the body heals itself with time and pain management. Sometimes pain management covers a problem, and the patient might be less aware that they need treatment for a deeper problem.

Physical Approach

Physical medicine and rehabilitation

Physical medicine and rehabilitation employs diverse physical techniques such as thermal agents and electrotherapy, as well as therapeutic exercise and behavioral therapy, alone or in tandem with interventional techniques and conventional pharmacotherapy to treat pain, usually as part of an interdisciplinary or multidisciplinary program. Spa therapy showed positive effects in reducing pain among patients with chronic low back pain. However there are limited studies looking at this approach. Studies have shown that kinesiotape could be used on individuals with chronic low back pain to reduce pain. The Center for Disease Control recommends that physical therapy and exercise can be prescribed as a positive alternative to opioids for decreasing one's pain in multiple injuries, illnesses, or diseases. This can include chronic low back pain, osteoarthritis of the hip and knee, or fibromyalgia. Exercise alone or with other rehabilitation disciplines (such as psychologically based

approaches) can have a positive effect on reducing pain. In addition to improving pain, exercise also can improve one's well-being and general health.

Manipulative and mobilization therapy are safe interventions that likely reduce pain for patients with chronic low back pain. However, manipulation produces a larger effect than mobilization.

Pain neuroscience education, in conjunction with routine physiotherapy interventions for chronic low back pain specifically, could provide short term relief of disability and pain.

Exercise interventions

Physical activity interventions, such as tai chi, yoga and Pilates, promote harmony of the mind and body through total body awareness. These ancient practices incorporate breathing techniques, meditation and a wide variety of movements, while training the body to perform functionally by increasing strength, flexibility, and range of motion. Physical activity and exercise may improve chronic pain (pain lasting more than 12 weeks), and overall quality of life, while minimizing the need for pain medications. More specifically, walking has been effective in improving pain management in chronic low back pain.

TENS

Transcutaneous electrical nerve stimulation has been found to be ineffective for lower back pain, however, it might help with diabetic neuropathyas well as other illnesses.

Acupuncture

Acupuncture involves the insertion and manipulation of needles into specific points on the body to relieve pain or for therapeutic purposes. An analysis of the 13 highest quality studies of pain treatment with acupuncture, published in January 2009 in the *British Medical Journal*, was unable to quantify the difference in the effect on pain of real, sham and no acupuncture. A systematic review in 2019 reported that acupuncture injection therapy was an effective treatment for patients with nonspecific chronic low back pain, and is widely used in Southeast Asian countries.

Light therapy

Research has not found evidence that light therapy such as low level laser therapy is an effective therapy for relieving low back pain.

Interventional procedures

Interventional procedures - typically used for chronic back pain - include epidural steroid injections, facet joint injections, neurolytic blocks, spinal cord stimulators and intrathecaldrug delivery system implants.

Pulsed radiofrequency, neuromodulation, direct introduction of medication and nerve ablation may be used to target either the tissue structures and organ/systems responsible for persistent nociception or the nociceptors from the structures implicated as the source of chronic pain. Radiofrequency

treatment has been seen to improve pain in patients for facet joint low back pain. However, continuous radiofrequency is more effective in managing pain than pulsed radiofrequency.

An intrathecal pump used to deliver very small quantities of medications directly to the spinal fluid. This is similar to epidural infusions used in labour and postoperatively. The major differences are that it is much more common for the drug to be delivered into the spinal fluid (intrathecal) rather than epidurally, and the pump can be fully implanted under the skin.

A spinal cord stimulator is an implantable medical device that creates electric impulses and applies them near the dorsal surface of the spinal cord provides a paresthesia("tingling") sensation that alters the perception of pain by the patient.

Intra-articular ozone therapy

Intra-acrticular ozone therapy has been seen to efficiently alleviate chronic pain in patients with knee osteoarthritis.

Mild pain

Paracetamol (acetaminophen), or a nonsteroidal anti-inflammatory drug (NSAID) such as ibuprofen.

Mild to moderate pain

Paracetamol, an NSAID or paracetamol in a combination product with a weak opioid such as tramadol, may provide greater relief than their separate use. Also a combination of opioid with acetaminophen can be frequently used such as Percocet, Vicodin, or Norco.

Moderate to severe pain

When treating moderate to severe pain, the type of the pain, acute or chronic, needs to be considered. The type of pain can result in different medications being prescribed. Certain medications may work better for acute pain, others for chronic pain, and some may work equally well on both. Acute pain medication is for rapid onset of pain such as from an inflicted trauma or to treat post-operative pain. Chronic pain medication is for alleviating long-lasting, ongoing pain.

Emotional Reactions

- Anger and resentment are common emotions of bereaved individuals. ...
- Guilt feelings are frequently a part of the grief process. ...
- Fear and anxiety is another **emotional** component of bereavement. ...
- Shame occurs when a person is in a situation that is incompatible with the image that one wishes others to have.

6.7 PSYCHOLOGICAL REACTIONS OF A PATIENT TO LOSS

Amputation presents multi-directional challenges. It affects function, sensation and body image. The psychological reactions vary greatly and depend on many factors and variable. In most cases, the predominant experience of the amputee is one of loss: not only the obvious loss of the limb but also resulting losses in function, self-image, career and relationships

Many of the psychological reactions may be transient, some are helpful and constructive, others less so, and a few may require further action (e.g. psychiatric assessment in the case of psychosis)

About ≥30% of amputees are troubled by depressionPsychological morbidity, decreased self esteem, distorted body image, increased dependency and significant levels of social isolation are also observed in short and long-term follow up after amputation.

Psychological Reactions to Amputation

The immediate reaction to the news of amputation depends on whether the amputation was planned, occurred within the context of chronic medical illness or necessitated by a sudden onset of infection or trauma.

After learning that amputation may be required, anxiety often alternates with depression. Anxiety may be the fate of the limb that will be removed, as well as about the prospect of phantom limb pain, which many patients (who know of other amputees) may be familiar with.

Post traumatic stress disorder (PTSD) appears to be more common in amputees following combat, accidental injury, burn and suicidal attempts.In contrast, PTSD is relatively rare (< 5%) among amputees whose surgery follows a chronic illness.

Cosmetic appearance appears to play a great role in the psychological sequelae of amputation. Body image, defined as ‘the individual’s psychological picture of himself’ is disrupted when a limb is amputated. A number of body image-related problems may be frequently experienced following amputation such as anxiety and sexual impairment and/or dysfunction. Mutilation anxiety may also affect the sexual function of a patient. Men have reported feeling castrated by amputation, while women are more likely to report feeling sexual guilt and “punished” for some real or imagined transgression by amputation.



The reaction to amputation may not always be negative. When amputations occur after a long period of illness and loss of function, the patient may already have gone through a period of grieving and has no need to grieve again for the amputation.

A study that investigated positive thoughts in amputation showed that 56% of people thought about their amputated limb. Participants stated many reasons as good things that happened following amputation such as the independence given to them by the amputation and the prosthesis, subsequent change in their attitude of life, improved coping abilities, financial benefits, elimination of pain and that amputation was a character-building for some of them. Furthermore, finding positive meaning was significantly associated with more favorable physical capabilities and health ratings, lower levels of Athletic Activity Restriction and higher levels of Adjustment to Limitation

6.8 FACTORS/VARIABLES AFFECTING PSYCHOLOGICAL REACTIONS

Age

Infants born with a congenially missing limb adapt adequately as they learn to make compensatory use of their remaining faculties. Children adapt well to the loss of function and manipulate prostheses and other limbs with great agility. They are particularly sensitive to peer acceptance and rejection. Amputation in the preadolescence or adolescent age group is a great threat to emerging sexual identity

Younger trauma patients are most likely to be affected by the multiple losses of amputation, for whom amputation is often the result of a sudden unforeseen event, and whose level of function following amputation normally compares unfavorably with their pre-amputation abilities.Several early studies suggested that elderly amputees were at greater risk for psychiatric disturbances such as depression. More recent studies find just the opposite[. In either case, the greatest challenges for the young amputee are in terms of identity, sexuality, and social acceptance, and for the elderly, in terms of livelihood, functional capacity, and interpersonal dealings

Personality Style

Individuals who are narcissistically invested in their physical appearance and power tend to react negatively to the loss of the limb. They see it as a major assault upon their dignity and self-worth. Conversely, dependent individuals may cherish the sick role and find in it welcome relief from pressure and responsibility

Those with a premorbid history of depression are more susceptible to dysphoria following amputation The loss serves to crystallize notions of a basic defect, sometimes expressed in self-punishing behaviors.

Timid and self-conscious individuals who are excessively concerned about their social standing are more likely to suffer psychologically from limb loss than are self-assured individuals.

Unexpected reactions may arise from secondary gain. If disability results in improved financial or social status, psychological adjustment may be made easier, especially if those gains are not directly challenged.

6.9 ECONOMIC AND VOCATIONAL VARIABLES

It stands to reason that individuals who earn their living from motor skills that are lost with the amputation are especially vulnerable to adverse reactions. Others who have a wide range of skills or whose main line of work is not particularly dependent on the function of the lost limb may experience less emotional difficulty.

Unemployment is associated with a greater degree of psychological stress and may be a predictor of phantom pain

Psychosocial Support

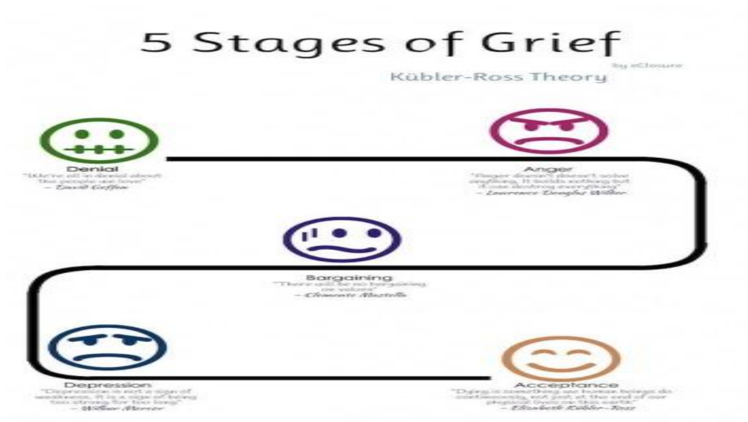
Single and widowed individuals suffer more psychological distress and difficulty in adapting to amputation than do those who are married and have a family. Particularly helpful in the adjustment of the adult amputee is the presence of a supportive partner who assumes a flexible approach, takes over functions when needed, cuts back when the amputee is able to manage, but at all times maintains the amputee's self-esteem.

Peer acceptance beyond the family is critical in the successful adaptation of all amputees and, especially, children and adolescents.

6.10 STAGES OF ACCEPTANCE BY KUBLER-ROSS

The **five** stages, **denial**, **anger**, **bargaining**, **depression** and acceptance are a part of the framework that makes up our learning to live with the one we lost. They are tools to help us frame and identify what we may be feeling. But they are not stops on some linear timeline in grief.

Coping Styles



When there is time to think about impending loss, classic stages of grief may be experienced:

- **Denial:** often manifest as a refusal to engage in discussion or to ask basic questions about the planned procedure. A minority of amputees experience denial in relation to accepting their impairment (i.e. the reality that their limb is missing). However, phantom sensation may play a role in reinforcing the denial. This degree of denial may lead to serious problems. Such a disconnection with reality may indicate some underlying psychosis This stage is less pronounced if amputations occur after a long period of illness and loss of function,
- **Anger:** which may be directed towards the medical team, with expressions of being cheated or tricked into agreeing to an amputation
- **Bargaining:** Feelings of guilt and second-guessing on things past or what that should have been done differently. Attempts by the use of excuses to forestall the surgery or to delay it indefinitely for a myriad of reasons such as ‘’I’m too tired I don’t want to go through any major surgery’’ are also seen.
- **Depression:** taking the form of learned helplessness’’ feeling of passivity, and being overwhelmed.
- **Acceptance:** which may not be reached until the patient is into the rehabilitation process.

6.11 TERMINOLOGIES

1.Stress 2. Reaction 3. Pain 4. Patient 5. Vocational

6.12 MODEL QUESTIONS

1. Explain the Models of Stress?
2. Discuss the types of Stress?
3. Bring out the Importance to mange Stress?
4. Explain the Pain and its management?
5. Discuss the Psychological reaction of a patient to loss?

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UNIT –VII MANAGEMENT OF ILL AND YOGA

Structure

7.1 INTROUCTION

Terminal illness or end-stage disease is a disease that cannot be cured or adequately treated and is reasonably expected to result in death of the patient. This term is more commonly used for progressive diseases such as cancer or advanced heart disease than for trauma. In popular use, it indicates a disease that will progress until death with near absolute certainty, regardless of treatment. A patient who has such an illness may be referred to as a terminal patient, terminally ill or simply terminal. There is no standardized life expectancy for a patient to be considered terminal, although it is generally months or less. Life expectancy for terminal patients is a rough estimate given by the physician based on previous data and does not always reflect true longevity.[1] An illness which is lifelong but not fatal is a chronic condition.

Terminal patients have options for disease management after diagnosis. Examples include caregiving, continued treatment, hospice care, and physician-assisted suicide. Decisions regarding management are made by

the patient and his or her family, although medical professionals may give recommendations or more about the services available to terminal patients.

Lifestyle after diagnosis varies depending largely on management decisions and also the nature of the disease, and there may be living restrictions depending on the condition of the patient. Oftentimes, terminal patients may experience depression or anxiety associated with oncoming death, and family and caregivers may struggle with psychological burdens as well. Psycho-therapeutic interventions may help alleviate some of these burdens, and is often incorporated in palliative care.

Because terminal patients are aware of their oncoming deaths, they have more time to prepare advance care planning, such as advance directives and living wills, which have been shown to improve end-of-life care. While death cannot be avoided, patients can still strive to die a good death.

Caregiving

Terminal patients often need a caregiver, who could be a nurse, licensed practical nurse or a family member. Caregivers can help patients receive medications to reduce pain and control symptoms of nausea or vomiting. They can also assist the individual with daily living activities and movement. Caregivers provide assistance with food and psychological support and ensure that the individual is comfortable.

The patient's family may have questions and most caregivers can provide information to help ease the mind. Doctors generally do not provide estimates for fear of instilling false hopes or obliterate an individual's hope.

In most cases, the caregiver works along with physicians and follows professional instructions. Caregivers may call the physician or a nurse if the individual:

- experiences excessive pain.
- is in distress or having difficulty breathing.
- has difficulty passing urine or is constipated.
- has fallen and appears hurt.
- is depressed and wants to harm themselves.
- refuses to take prescribed medications, raising ethical concerns best addressed by a person with more extensive formal training.
- or if the caregiver does not know how to handle the situation.

Most caregivers become the patient's listeners and let the individual express fears and concerns without judgment. Caregivers reassure the patient and honor all advance directives. Caregivers respect the individual's need for privacy and usually hold all information confidential.

Palliative care

Palliative care focuses on addressing patients' needs after disease diagnosis. While palliative care is not disease treatment, it addresses patients' physical needs, such as pain management, offers emotional support, caring for the

patient psychologically and spiritually, and helps patients build support systems that can help them get through difficult times. Palliative care can also help patients make decisions and come to understand what they want regarding their treatment goals and quality of life.

Palliative care is an attempt to improve patients' quality-of-life and comfort, and also provide support for family members and carers. Additionally, it lowers hospital admissions costs. However, needs for palliative care are often unmet whether due to lack of government support and also possible stigma associated with palliative care. For these reasons, the World Health Assembly recommends development of palliative care in health care systems.

Palliative care and hospice care are often confused, and they have similar goals. However, hospice care is specifically for terminal patients while palliative care is more general and offered to patients who are not necessarily terminal.

Hospice care

While hospitals focus on treating the disease, hospices focus on improving patient quality-of-life until death. A common misconception is that hospice care hastens death because patients "give up" fighting the disease. However, patients in hospice care often live the same length of time as patients in the hospital. A study of 3850 liver cancer patients found that patients who received hospice care, and those who did not, survived for the same amount of time. In fact, a study of 3399 adult lung cancer patients showed that patients who received hospice care actually survived longer than those who did not. Additionally, in both of these studies, patients receiving hospice care had significantly lower healthcare expenditures.

Hospice care allows patients to spend more time with family and friends. Since patients are in the company of other hospice patients, they have an additional support network and can learn to cope together. Hospice patients are also able to live at peace away from a hospital setting; they may live at home with a hospice provider or at an inpatient hospice facility.

Medications for terminal patients

Terminal patients experiencing pain, especially cancer-related pain, are often prescribed opioids to relieve suffering. The specific medication prescribed, however, will differ depending on severity of pain and disease status.

There exist inequities in availability of opioids to terminal patients, especially in countries where opioid access is limited.

A common symptom that many terminal patients experience is dyspnea, or difficulty with breathing. To ease this symptom, doctors may also prescribe opioids to patients. Some studies suggest that oral opioids may help with breathlessness. However, due to lack of consistent reliable evidence, it is currently unclear whether they truly work for this purpose.

Depending on the patient's condition, other medications will be prescribed accordingly. For example, if patients develop depression, antidepressants will

be prescribed. Anti-inflammation and anti-nausea medications may also be prescribed.

Continued treatment

Some terminal patients opt to continue extensive treatments in hope of a miracle cure, whether by participating in experimental treatments and clinical trials or seeking more intense treatment for the disease. Rather than to "give up fighting," patients spend thousands more dollars to try to prolong life by a few more months. What these patients often do give up, however, is quality of life at the end of life by undergoing intense and often uncomfortable treatment. A meta-analysis of 34 studies including 11,326 patients from 11 countries found that less than half of all terminal patients correctly understood their disease prognosis, or the course of their disease and likeliness of survival. This could influence patients to pursue unnecessary treatment for the disease due to unrealistic expectations.

Transplant

For patients with end stage kidney failure, studies have shown that transplants increase the quality of life and decreases mortality in this population. In order to be placed on the organ transplant list, patients are referred and assessed based on criteria that ranges from current comorbidities to potential for organ rejection post transplant. Initial screening measures include: blood tests, pregnancy tests, serologic tests, urinalysis, drug screening, imaging, and physical exams.

For patients who are interested in liver transplantation, only patients with acute liver failure have the highest priority over patients with only cirrhosis. Acute liver failure patients will present with worsening symptoms of somnolence or confusion (hepatic encephalopathy) and thinner blood (increased INR) due to the liver’s inability to make clotting factors. Some patients could experience portal hypertension, hemorrhages, and abdominal swelling (ascites). Model for End Stage Liver Disease (MELD) is often used to help providers decide and prioritize candidates for transplant.

Physician-assisted suicide

Physician-assisted suicide (PAS) is a highly controversial concept, only legal in a few countries. In PAS, physicians, with voluntary written and verbal consent from the patient, give patients the means to die, usually through lethal drugs. The patient then chooses to "die with dignity," deciding on his/her own time and place to die. Reasons as to why patients choose PAS differ. Factors that may play into a patient's decision include future disability and suffering, lack of control over death, impact on family, healthcare costs, insurance coverage, personal beliefs, religious beliefs, and much more.

PAS may be referred to in many different ways, such as aid in dying, assisted dying, death with dignity, and many more. These often depend on the organization and the stance they take on the issue. In this section of the article, it will be referred to as PAS for the sake of consistency with the pre-existing Wikipedia page: Assisted Suicide.

In the United States, PAS or medical aid in dying is legal in select states, including Oregon, Washington, Montana, Vermont, and New Mexico, and there are groups both in favor of and against legalization.

Some groups favor PAS because they do not believe they will have control over their pain, because they believe they will be a burden on their family, and because they do not want to lose autonomy and control over their own lives among other reasons. They believe that allowing PAS is an act of compassion.

While some groups believe in personal choice over death, others raise concerns regarding insurance policies and potential for abuse. According to Sulmasy et al., the major non-religious arguments against physician-assisted suicide are quoted as follows:

- (1) “it offends me,” suicide devalues human life;
- (2) slippery slope, the limits on euthanasia gradually erode;
- (3) “pain can be alleviated,” palliative care and modern therapeutics more and more adequately manage pain;
- (4) physician integrity and patient trust, participating in suicide violates the integrity of the physician and undermines the trust patients place in physicians to heal and not to harm"

Again, there are also arguments that there are enough protections in the law that the slippery slope is avoided. For example, the Death with Dignity Act in Oregon includes waiting periods, multiple requests for lethal drugs, a psychiatric evaluation in the case of possible depression influencing decisions, and the patient personally swallowing the pills to ensure voluntary decision.

Physicians and medical professionals also have disagreeing views on PAS. Some groups, such as the American College of Physicians (ACP), the American Medical Association(AMA), the World Health Organization, American Nurses Association, Hospice Nurses Association, American Psychiatric Association, and more have issued position statements against its legalization.

The ACP's argument concerns the nature of the doctor-patient relationship and the tenets of the medical profession. They state that instead of using PAS to control death: "through high-quality care, effective communication, compassionate support, and the right resources, physicians can help patients control many aspects of how they live out life's last chapter."[34]

Other groups such as the American Medical Students Association, the American Public Health Association, the American Medical Women's Association, and more support PAS as an act of compassion for the suffering patient.

In many cases, the argument on PAS is also tied to proper palliative care. The International Association for Hospice and Palliative Care issued a position statement arguing against considering legalizing PAS unless comprehensive palliative care systems in the country were in place. It could be argued that with proper palliative care, the patient would experience fewer intolerable symptoms, physical or emotional, and would not choose death over these

symptoms. Palliative care would also ensure that patients receive proper information about their disease prognosis as not to make decisions about PAS without complete and careful consideration.

7.2 MEDICAL CARE

Many aspects of medical care are different for terminal patients compared to patients in the hospital for other reasons.

Doctor–patient relationships

Doctor–patient relationship are crucial in any medical setting, and especially so for terminal patients. There must be an inherent trust in the doctor to provide the best possible care for the patient. In the case of terminal illness, there is often ambiguity in communication with the patient about his/her condition. While terminal condition prognosis is often a grave matter, doctors do not wish to quash all hope, for it could unnecessarily harm the patient's mental state and have unintended consequences. However, being overly optimistic about outcomes can leave patients and families devastated when negative results arise, as is often the case with terminal illness.

Mortality predictions

Often, a patient is considered terminally ill when his or her estimated life expectancy is six months or less, under the assumption that the disease will run its normal course based on previous data from other patients. The six-month standard is arbitrary, and best available estimates of longevity may be incorrect. Though a given patient may properly be considered terminal, this is not a guarantee that the patient will die within six months. Similarly, a patient with a slowly progressing disease, such as AIDS, may not be considered terminally ill if the best estimate of longevity is greater than six months. However, this does not guarantee that the patient will not die unexpectedly early.

In general, physicians slightly overestimate the survival time of terminally ill cancer patients, so that, for example, a person who is expected to live for about six weeks would likely die around four weeks.

A recent systematic review on palliative patients in general, rather than specifically cancer patients, states the following: "Accuracy of categorical estimates in this systematic review ranged from 23% up to 78% and continuous estimates over-predicted actual survival by, potentially, a factor of two." There was no evidence that any specific type of clinician was better at making these predictions.

Healthcare spending

Healthcare during the last year of life is costly, especially for patients who used hospital services often during end-of-life.

In fact, according to Langton et al., there were "exponential increases in service use and costs as death approached."

Many dying terminal patients are also brought to the emergency department (ED) at the end of life when treatment is no longer beneficial, raising costs and using limited space in the ED.

While there are often claims about "disproportionate" spending of money and resources on end-of-life patients, data have not proven this type of correlation.

The cost of healthcare for end-of-life patients is 13% of annual healthcare spending in the U.S. However, of the group of patients with the highest healthcare spending, end-of-life patients only made up 11% of these people, meaning the most expensive spending is not made up mostly of terminal patients.

Many recent studies have shown that palliative care and hospice options as an alternative are much less expensive for end-of-life patients.

7.3 PSYCHOLOGICAL IMPACT

Coping with impending death is a hard topic to digest universally. Patients may experience grief, fear, loneliness, depression, and anxiety among many other possible responses. Terminal illness can also lend patients to become more prone to psychological illness such as depression and anxiety disorders. Insomnia is a common symptom of these.

It is important for loved ones to show their support for the patient during these times and to listen to his or her concerns.

People who are terminally ill may not always come to accept their impending death. For example, a person who finds strength in denial may never reach a point of acceptance or accommodation and may react negatively to any statement that threatens this defense mechanism.

Impact on patient

Depression is relatively common among terminal patients, and the prevalence increases as patients become sicker. Depression causes quality of life to go down, and a sizable portion of patients who request assisted suicide are depressed. These negative emotions may be heightened by lack of sleep and pain as well. Depression can be treated withantidepressants and/or therapy, but doctors often do not realize the extent of terminal patients' depression.

Because depression is common among terminal patients, the American College of Physicians recommends regular assessments for depression for this population and appropriate prescription of antidepressants.

Anxiety disorders are also relatively common for terminal patients as they face their mortality. Patients may feel distressed when thinking about what the future may hold, especially when considering the future of their families as well. It is important to note, however, that some palliative medications may facilitate anxiety.

Coping for patients

Caregivers may listen to the concerns of terminal patients to help them reflect on their emotions. Different forms of psychotherapy and psychosocial

intervention, which can be offered with palliative care, may also help patients think about and overcome their feelings. According to Block, "most terminally ill patients benefit from an approach that combines emotional support, flexibility, appreciation of the patient's strengths, a warm and genuine relationship with the therapist, elements of life-review, and exploration of fears and concerns."

Impact on family

Terminal patients' families often also suffer psychological consequences. If not well equipped to face the reality of their loved one's illness, family members may develop depressive symptoms and even have increased mortality. Taking care of sick family members may also cause stress, grief, and worry. Additionally, financial burden from medical treatment may be a source of stress.

Coping for family

Discussing the anticipated loss and planning for the future may help family members accept and prepare for the patient's death. Interventions may also be offered for anticipatory grief. In the case of more serious consequences such as Depression, a more serious intervention or therapy is recommended.

Grief counseling and grief therapy may also be recommended for family members after a loved one's death

Dying

When dying, patients often worry about their quality of life towards the end, including emotional and physical suffering.

In order for families and doctors to understand clearly what the patient wants for himself or herself, it is recommended that patients, doctors, and families all convene and discuss the patient's decisions before the patient becomes unable to decide.

Advanced Directives

At the end of life, especially when patients are unable to make decisions on their own regarding treatment, it is often up to family members and doctors to decide what they believe the patients would have wanted regarding their deaths, which is a heavy burden and hard for family members to predict. An estimated 25% of American adults have an advanced directive, meaning the majority of Americans leave these decisions to be made by family, which can lead to conflict and guilt. Although it may be a difficult subject to broach, it is important to discuss the patient's plans for how far to continue treatment should they become unable to decide. This must be done while the patient is still able to make the decisions, and takes the form of an advance directive. The advance directive should be updated regularly as the patient's condition changes so as to reflect the patient's wishes.

Some of the decisions that advance directives may address include receiving fluids and nutrition support, getting blood transfusions, receiving antibiotics,

resuscitation (if the heart stops beating), and intubation (if the patient stops breathing).

Having an advance directive can improve end-of-life care.

It is highly recommended by many research studies and meta-analyses for patients to discuss and create an advance directive with their doctors and families.

Do-not-resuscitate

One of the options of care that patients may discuss with their families and medical providers is the do-not-resuscitate (DNR) order. This means that if the patient's heart stops, CPR and other methods to bring back heartbeat would not be performed. This is the patient's choice to make and can depend on a variety of reasons, whether based on personal beliefs or medical concerns. DNR orders can be medically and legally binding depending on the applicable jurisdiction.

Decisions like these should be indicated in the advance directive so that the patient's wishes can be carried out to improve end-of-life care.

Symptoms near death

A variety of symptoms become more apparent when a patient is nearing death. Recognizing these symptoms and knowing what will come may help family members prepare.

During the final few weeks, symptoms will vary largely depending on the patient's disease. During the final hours, patients usually will reject food and water and will also sleep more, choosing not to interact with those around them. Their bodies may behave more irregularly, with changes in breathing, sometimes with longer pauses between breaths, irregular heart rate, low blood pressure, and coldness in the extremities. It is important to note, however, that symptoms will vary per patient.

Good death

Patients, healthcare workers, and recently bereaved family members often describe a "good death" in terms of effective choices made in a few areas:

- Assurance of effective pain and symptom management.
- Education about death and its aftermath, especially as it relates to decision-making.
- Completion of any significant goals, such as resolving past conflicts.

In the last hours of life, palliative sedation may be recommended by a doctor or requested by the patient to ease the symptoms of death until he or she passes away. Palliative sedation is not intended to prolong life or hasten death; it is merely meant to relieve symptoms.

7.4 QUALITY OF LIFE

Quality of life is an overarching term for the quality of the various domains in human life. It is an expected standard level that consists of the expectations of an individual or society for a good life. These expectations are guided by the values, goals and socio-cultural context in which an individual lives.

Quality of life (QOL) is an overarching term for the quality of the various domains in human life. It is an expected standard level that consists of the expectations of an individual or society for a good life. These expectations are guided by the values, goals and socio-cultural context in which an individual lives. QOL is a subjective, multidimensional concept that defines a standard level for emotional, physical, material and social well-being. It serves as a reference against which an individual or society can measure the different domains of a personal life. The extent to which one's own life coincides with a desired standard level - or, put differently, the degree to which these domains give satisfaction and as such contribute to one's subjective well-being - is called life satisfaction.

According to ecological economist Robert Costanza:

While Quality of Life (QOL) has long been an explicit or implicit policy goal, adequate definition and measurement have been elusive. Diverse "objective" and "subjective" indicators across a range of disciplines and scales, and recent work on subjective well-being (SWB) surveys and the psychology of happiness have spurred renewed interest.[7]

One approach, called engaged theory, outlined in the journal of *Applied Research in the Quality of Life*, posits four domains in assessing quality of life: ecology, economics, politics and culture. In the domain of culture, for example, it includes the following subdomains of quality of life:

- Belief and ideas
- Creativity and recreation
- Enquiry and learning
- Gender and generations
- Identity and engagement
- Memory and projection
- Well-being and health

Also frequently related are concepts such as freedom, human rights, and happiness. However, since happiness is subjective and difficult to measure, other measures are generally given priority. It has also been shown that happiness, as much as it can be measured, does not necessarily increase correspondingly with the comfort that results from increasing income. As a result, standard of living should not be taken to be a measure of happiness. Also sometimes considered related is the concept of human security, though the latter may be considered at a more basic level and for all people.

7.5 QUANTITATIVE MEASUREMENT

Unlike *per capita* GDP or standard of living, both of which can be measured in financial terms, it is harder to make objective or long-term measurements of the quality of life experienced by nations or other groups of people. Researchers have begun in recent times to distinguish two aspects of personal well-being: *Emotional well-being*, in which respondents are asked about the quality of their everyday emotional experiences—the frequency and intensity of their experiences of, for example, joy, stress, sadness, anger, and affection— and *life evaluation*, in which respondents are asked to think about their life in general and evaluate it against a scale. Such and other systems and scales of measurement have been in use for some time. Research has attempted to examine the relationship between quality of life and productivity. There are many different methods of measuring quality of life in terms of health care, wealth and materialistic goods. However, it is much more difficult to measure meaningful expression of one's desires. One way to do so is to evaluate the scope of how individuals have fulfilled their own ideals. Quality of life can simply mean happiness, the subjective state of mind. By using that mentality, citizens of a developing country appreciate more since they are content with the basic necessities of health care, education and child protection.

Livability

The term *quality of life* is also used by politicians and economists to measure the livability of a given city or nation. Two widely known measures of livability are the Economist Intelligence Unit's Where-to-be-born Index and Mercer's Quality of Living Reports. These two measures calculate the livability of countries and cities around the world, respectively, through a combination of subjective life-satisfaction surveys and objective determinants of quality of life such as divorce rates, safety, and infrastructure. Such measures relate more broadly to the population of a city, state, or country, not to individual quality of life. Livability has a long history and tradition in urban design, and neighborhoods design standards such as LEED-ND are often used in an attempt to influence livability.

7.6 SOCIAL SUPPORT AND REHABILITATION

During the first half of the 20th century, two unofficial specialties, physical medicine and rehabilitation medicine, developed separately, but in practice both treated similar patient populations consisting of those with disabling injuries. Frank H. Krusenwas a pioneer of physical medicine, which emphasized the use of physical agents, such as hydrotherapy and hyperbaric oxygen, at Temple University and then at Mayo Clinic and it was he that coined the term 'physiatry' in 1938. Rehabilitation medicine gained prominence during both World Wars in the treatment of injured soldiers and laborers. Howard A. Rusk, an internal medicine physician from Missouri, became a pioneer of rehabilitation medicine after being appointed to rehabilitate airmen during World War II. In 1944, the Baruch Committee, commissioned by philanthropist Bernard Baruch, defined the specialty as a

combination of the two fields and laid the framework for its acceptance as an official medical specialty. The committee also distributed funds to establish training and research programs across the nation. The specialty that came to be known as physical medicine and rehabilitation in the United States was officially established in 1947, when an independent Board of Physical Medicine was established under the authority of the American Board of Medical Specialties. In 1949, at the insistence of Dr. Rusk and others, the specialty incorporated rehabilitation medicine and changed its name to Physical Medicine and Rehabilitation.

Physical medicine and rehabilitation, also known as physiatry, is a branch of medicine that aims to enhance and restore functional ability and quality of life to people with physical impairments or disabilities.

Scope of the field

Physical medicine and rehabilitation encompasses a variety of clinical settings and patient populations. In hospital settings, physiatrists commonly treat patients who have had an amputation, spinal cord injury, stroke, traumatic brain injury, and other debilitating injuries or conditions. In treating these patients, physiatrists lead an interdisciplinary team of physical, occupational, recreational and speech therapists, nurses, psychologists, and social workers.

In outpatient settings, physiatrists treat patients with muscle and joint injuries, pain syndromes, non-healing wounds, and other disabling conditions. Physiatrists are trained to perform injections into joints or muscle as a pain treatment option. Physiatrists are also trained in nerve conduction studies and electromyography.

Treatment

The major goal of physical medicine and rehabilitation treatment is to help a person function optimally within the limitations placed upon them by a disabling impairment or disease process for which there is no known cure. The emphasis is not on the full restoration to the premorbid level of function, but rather the optimization of the quality of life for those not able to achieve full restoration. A team approach to chronic conditions is emphasized to coordinate care of patients. Comprehensive rehabilitation is provided by specialists in this field, who act as facilitators, team leaders, and medical experts for rehabilitation.

In rehabilitation, goal setting is often used by the clinical care team to provide the team and the person undergoing rehabilitation for an acquired disability a direction to work towards.[6] Very low quality evidence indicates that goal setting may lead to a higher quality of life for the person with the disability, and it not clear if goal setting used in this context reduces or increases re-hospitalization or death.

Not only must a physiatrist know medical knowledge regarding a patient's condition, but they also need to know practical knowledge regarding it as well. This involves issues such as: what type of wheelchair best suits the patient,

what type of prosthetic would fit best, does their current house layout accommodate their handicap well, and other every day complications that their patients might have.

Types of rehabilitation

The three main types of rehabilitation therapy are occupational, physical and speech. Each form of rehabilitation serves a unique purpose in helping a person reach full recovery, but all share the ultimate goal of helping the patient return to a healthy and active lifestyle.

Rehabilitation therapy can be used to treat a wide range of injuries or conditions. “Common conditions treated include orthopedic and musculoskeletal injuries such as sprains/strains/tears or post-surgical rehabilitation, neurological injuries such as stroke, brain injury or spinal cord injury, or multi-trauma injuries due to accidents,” says Anthony. “We also treat less common conditions such as genetic disorders, degenerative diseases and other specialized conditions. We treat all ages from newborns to our oldest patient to date being 104 years old!”

The goal of rehabilitation therapy varies from person to person. "We ask every patient what their goals for rehabilitation are and develop a plan," he says. “This may include different types of therapy such as physical, occupational, speech, music or recreational, and may include different treatment techniques such as therapeutic exercise, manual therapy, neurological re-education or modalities for pain relief, to name a few of the many possible treatment strategies.”

Inpatient vs. outpatient rehabilitation treatments

First, it’s important to define the difference between inpatient and outpatient rehabilitation therapy. Inpatient rehabilitation refers to treatment or therapy you receive in a hospital or clinic prior to being discharged. Patients who go through an amputation, suffer a brain injury or stroke, experience an orthopedic or spinal cord injury or receive a transplant may require inpatient therapy to recover to a point where they can safely go home.

Outpatient rehabilitation therapy refers to treatment received when not admitted to a hospital or clinic. Outpatient therapy centers offer a blend of services from physical therapists, occupational therapists, speech pathologists and psychologists. Outpatient rehabilitation centers tend to offer therapy for a wide range of conditions including cancer, neurological disorders, neck and back pain, speech problems, psychological disorders, pre- and post-natal issues and more.



Occupational therapy

Occupational therapists provide occupational therapy (OT) treatments to help individuals who require specialized assistance to participate in everyday activities, or "occupations." Occupations don't just refer to work or your job, but can also refer to self-care practices, everyday tasks and recreational activities. The goal of occupational therapy is to help individuals participate in the things they want and need to do to live an independent and satisfying lifestyle.

Occupational therapists help by making changes to things that hinder someone's ability to complete tasks such as eating, dressing, brushing one's teeth, completing school activities and working. Modifications may include changing the way the task is approached, changing the environment in which the task is completed or helping a person develop skills necessary to complete certain tasks.

Who needs occupational therapy?

Occupational therapy may be needed by people of all ages, from newborns to seniors. There are endless ways in which occupational therapy may help these individuals, such as:

- Children with physical disabilities may need a therapist to help them develop the coordination needed to feed themselves, use a computer or improve their handwriting.
- Adults with depression may require recommendations from a therapist to re-engage in daily activities gradually and in a manner that maximizes their chances for success.
- An individual who has lost the ability to hold a fork due to an injury may work with a therapist to regain grip strength and modify movements so that they can feed themselves independently.
- Seniors with physical limitations may need help from a therapist to participate in activities they love in new and modified ways.

- Those who have suffered a spinal cord injury may require therapist intervention to help them avoid movements or behaviors that may worsen their injuries.
- Corporate professionals may work with a therapist to create an optimal work/life balance designed to reduce stress and maximize health or modify their work environment based on ergonomic principles.
- An individual who has experienced a traumatic brain injury and lost cognitive function may require a therapist to assist them with tasks such as applying to jobs or submitting college applications.



Physical therapy

Physical therapists provide treatment for those who are experiencing pain or difficulty in functioning, moving or living life normally.

Physical therapy is commonly used to relieve pain, improvement movement, provide rehabilitation after a stroke, injury or surgery, assist in recovery after giving birth, assist in the recovery of sports-related injuries, teach individuals how to use devices such as walkers and canes, manage chronic illnesses like heart disease or arthritis, and more.

If physical therapy is recommended by your doctor, a therapist will start by assessing your mobility, balance, heartbeat, posture and how well you can walk or climb steps. From there, your therapist will develop a plan to ease symptoms and help you regain functionality or mobility. Common therapies include:

- Special exercises and stretches designed to relieve pain, improve mobility or regain strength
- Massage, heat or cold therapy or ultrasound to ease muscle pain and spasms
- Rehab and exercises to help you learn to use an artificial limb

- Practicing with gadgets that assist in movement or balance, such as canes, crutches, walkers or wheelchairs
- Balance and gait retraining
- Pain management
- Cardiovascular strengthening
- Casting, splinting, burn care or use of orthotics (braces or splints)



Speech therapy

Speech therapists (or speech-language pathologists) provide treatment for those who have speech issues. Speech therapy can help treat a wide variety of issues involving language, communication, voice, swallowing and fluency. For newborns, a speech therapist may help with conditions such as cerebral palsy, cleft palate or Down syndrome that cause difficulties with drinking, swallowing or communicating.

Children with speech issues such as stammering or a lisp can benefit from communication exercises under the instruction of a therapist. Adults with learning difficulties or who have another condition, such as stroke, neck or head cancer, Parkinson's disease or dementia, can also benefit from the help of a speech therapist.

The goal of speech therapy is to combine the mechanics associated with speech with the use of language. The end result is to help the patient communicate in more useful and functional ways.

Common tactics used by speech therapists include language intervention activities (language drills to practice communication skills), articulation therapy (demonstrating how to move the tongue to create certain sounds), and

feeding and swallowing therapy (tongue, lip and jaw exercises designed to strengthen the muscles of the mouth and throat).

Conditions or illnesses that may require a speech therapist include:

- **Dyslexia** - difficulty reading accurately and fluently
- **Dyspraxia** - difficulty controlling muscle function for movement, coordination, language or speech
- **Aphasia** - a loss of ability to understand or express speech due to brain damage
- **Dysphagia** - difficulty swallowing
- **Articulation problems -** difficulty speaking clearly and making errors in sounds
- **Fluency problems -** difficulty with the flow of speech, such as stuttering
- **Resonance or voice problems -** difficulty with voice pitch, volume and quality
- **Oral feeding problems -** difficulty with eating, swallowing or drooling
- **Parkinson's disease**
- **Cerebral palsy**
- **Cleft palate**
- **Down syndrome**
- **Multiple sclerosis**
- **Huntington's disease**
- **Cancer of the head, neck or throat**

7.7 YOGA ASANAS

An asana is a body posture, originally and still a general term for a sitting meditation pose, and later extended in hatha yogaand modern yoga as exercise, to any type of pose or position, adding reclining, standing, inverted, twisting, and balancing poses. The *Yoga Sutras of Patanjali* define "asana" as "[a position that] is steady and comfortable". Patanjali mentions the ability to sit for extended periods as one of the eight limbs of his system. Asanas are also called yoga poses or yoga postures .

The 10th or 11th century *Goraksha Sataka* and the 15th century *Hatha Yoga Pradipika* identify 84 asanas; the 17th century*Hatha Ratnavali* provides a different list of 84 asanas, describing some of them. In the 20th century, Indian nationalism favoured physical culture in response to colonialism. In that environment, pioneers such as Yogendra, Kuvalayananda, andKrishnamacharya taught a new system of asanas (incorporating systems of exercise as well as traditional hatha yoga). Among Krishnamacharya's pupils were influential Indian yoga teachers including Pattabhi Jois, founder of Ashtanga vinyasa yoga, and B.K.S. Iyengar, founder of Iyengar yoga. Together they described hundreds more asanas, revived the popularity of yoga, and brought it to the Western world. Many more asanas have been devised

since Iyengar's 1966 *Light on Yoga* which described some 200 asanas. Hundreds more were illustrated by Dharma Mittra.

Asanas were claimed to provide both spiritual and physical benefits in medieval hatha yoga texts. More recently, studies have provided evidence that they improve flexibility, strength, and balance; to reduce stress and conditions related to it; and specifically to alleviate some diseases such as asthma and diabetes.

Asanas have appeared in culture for many centuries. Religious Indian art depicts figures of Buddha, Shiva, and Jain tirthankarasin lotus position and other meditation seats, and in the "royal ease" position, lalitasana. With the popularity of yoga as exercise, asanas feature commonly in novels and films, and sometimes also in advertising.

Origins of the asanas

The asanas have been created at different times, a few being ancient, some being medieval, and a growing number recent. Some that appear traditional, such as Virabhadrasana I (Warrior Pose I), are relatively recent: that pose was probably devised by Krishnamacharya around 1940, and it was popularised by his pupil, Iyengar. A pose that is certainly younger than that is Parivritta Parsvakonasana (Revolved Side Angle Pose): it was not in the first edition of Pattabhi Jois's *Yoga Mala* in 1962. Viparita Virabhadrasana (Reversed Warrior Pose) is still more recent, and may have been created since 2000. Several poses that are now commonly practised, such as Dog Pose and standing asanas including Trikonasana (triangle pose), first appeared in the 20th century, as did the sequence of asanas, Surya Namaskar (Salute to the Sun). A different sun salutation, the Aditya Hridayam, is certainly ancient, as it is described in the "Yuddha Kaanda" Canto 107 of the *Ramayana*. Surya Namaskar in its modern form was created by the Raja of Aundh, Bhawanrao Shriniwasrao Pant Pratinidhi; K. Pattabhi Jois defined the variant forms Surya Namaskar A and B for Ashtanga Yoga, possibly derived from Krishnamacharya. Surya Namaskar can be seen as "a modern, physical culture-oriented rendition" of the simple ancient practice of prostrating oneself to the sun.

In 1966, Iyengar's classic *Light on Yoga* was able to describe some 200 asanas, consisting of about 50 main poses with their variations. Sjoman observes that whereas many traditional asanas are named for objects (like Vrikshasana, tree pose), legendary figures (likeMatsyendrasana, the sage Matsyendra's pose), or animals (like Kurmasana, tortoise pose), "an overwhelming eighty-three" of Iyengar's asanas have names that simply describe the body's position (like Utthita Parsvakonasana, "Extended Side Angle Pose"); these are, he suggests, the ones "that have been developed later". A name following this pattern is Shatkonasana, "Six Triangles Pose", described in 2015. Mittra illustrated 908 poses and variations in his 1984 *Master Yoga Chart*, and many more have been created since then. The number of asanas has thus increased with time, as summarised in the table.

Sjoman notes that the names of asanas have been used "promiscuous[ly]", in a tradition of "amalgamation and borrowing" over the centuries, making their history difficult to trace. The presence of matching names is not proof of continuity, since the same name may mean a different pose, and a pose may have been known by multiple names at different times.

Purposes

Spiritual

The lion pose, Simhasana, is named for an avatar ofVishnu in the form of the man-lion Narasimha. India, 12th Century

The asanas of hatha yoga originally had a spiritual purpose within Hinduism, the attainment of samadhi, a state of meditative consciousness. The scholar of religion Andrea Jain notes that medieval Hatha Yoga was shared among yoga traditions, from Shaivite Naths to Vaishnavas, Jains and Sufis; in her view, its aims too varied, including spiritual goals involving the "tantric manipulation of the subtle body", and at a more physical level, destroying poisons. Singleton describes Hatha Yoga's purpose as "the transmutation of the human body into a vessel immune from mortal decay", citing the *Gheranda Samhita*'s metaphor of an earthenware pot that requires the fire of yoga to make it serviceable. Mallinson and Singleton note that the purposes of asana practice were, until around the fourteenth century, firstly to form a stable platform for pranayama, mantra repetition (japa), and meditation, practices that in turn had spiritual goals; and secondly to stop the accumulation of karma and instead acquire ascetic power, tapas, something that conferred "supernatural abilities". Hatha Yoga added the ability to cure diseases to this list. Not all Hindu scriptures agreed that asanas were beneficial. The 10th century *Garuda Purana* stated that "the techniques of posture do not promote yoga. Though called essentials, they all retard one's progress," while early yogis often practised extreme austerities (tapas) to overcome what they saw as the obstacle of the body in the way of liberation.

The yoga scholar and practitioner Theos Bernard, in his 1944 *Hatha Yoga: The Report of a Personal Experience*, stated that he was "prescribed … a group of asanas[i] calculated to bring a rich supply of blood to the brain and to various parts of the spinal cord .. [and] a series of reconditioning asanas to stretch, bend, and twist the spinal cord" followed when he was strong enough by the meditation asanas. Bernard named the purpose of Hatha Yoga as "to gain control of the breath" to enable pranayama to work, something that in his view required thorough use of the six purifications.

Asanas work in different ways from conventional physical exercises, according to Satyananda Saraswati "placing the physical body in positions that cultivate awareness, relaxation and concentration".Leslie Kaminoff writes in *Yoga Anatomy* that from one point of view, "all of asana practice can be viewed as a methodical way of freeing up the spine, limbs, and breathing so that the yogi can spend extended periods of time in a seated position."

Iyengar observed that the practice of asanas "brings steadiness, health, and lightness of limb. A steady and pleasant posture produces mental equilibrium

and prevents fickleness of mind." He adds that they bring agility, balance, endurance, and "great vitality", developing the body to a "fine physique which is strong and elastic without being muscle-bound". But, Iyengar states, their real importance is the way they train the mind, "conquer[ing]" the body and making it "a fit vehicle for the spirit".

Names of asanas illustrating spiritual evolution

Asana	Level
Vishnu's Couch, Salute to the Sun	Gods
Virabhadra, Matsyendra	Heroes, sages
Dog	Mammals
Pigeon	Birds
Cobra	Reptiles
Fish, Frog	Aquatic animals
Locust	Invertebrates
Tree	Plants
Mountain	Inanimate

Iyengar saw it as significant that asanas are named after plants, insects, fish and amphibians, reptiles, birds, and quadrupeds; as well as "legendary heroes", sages, and avatars of Hindu gods, in his view "illustrating spiritual evolution".For instance, the lion pose, Simhasana, recalls the myth of Narasimha, half man, half lion, and an avatar of Vishnu, as told in the *Bhagavata Purana*. The message is, Iyengar explains, that while performing asanas, the yogi takes the form of different creatures, from the lowest to the highest, not despising any "for he knows that throughout the whole gamut of creation ... there breathes the same Universal Spirit." Through mastery of the asanas, Iyengar states, dualities like gain and loss, or fame and shame disappear.

Sjoman argues that the concept of stretching in yoga can be looked at through one of Patanjali's *Yoga Sutras*, 2.47, which says that [asanas are achieved] by loosening (*śaithilya*) the effort (*prayatna*) and meditating on the endless (*ananta*). Sjoman points out that this physical loosening is to do with the mind's letting go of restrictions, allowing the natural state of "unhindered perfect balance" to emerge; he notes that one can only relax through effort, "as only a muscle that is worked is able to relax (that is, there is a distinction

between dormancy and relaxation)." Thus asanas had a spiritual purpose, serving to explore the conscious and unconscious mind.

Exercise

Since the mid-20th century, asanas have been used, especially in the Western world, as physical exercise. In this context, their "overtly Hindu" purpose is masked but its "ecstatic … transcendent … possibly subversive" elements remain. That context has led to a division of opinion among Christians, some asserting that it is acceptable as long as they are aware of yoga's origins, others stating that hatha yoga's purpose is inherently Hindu, making Christian yoga an evident contradictionor indeed "diametrically opposed to Christianity". A similar debate has taken place in a Muslim context; under Crown Prince Mohammed bin Salman, yoga, formerly banned as a Hindu practice, has been legalised,[105] while mainly-Hindu Bali has held a yoga competition in defiance of a ruling by Indonesia's Muslim Ulema Council.

In a secular context, the journalists Nell Frizzell and Reni Eddo-Lodge have debated (in *The Guardian*) whether Western yoga classes represent "cultural appropriation". In Frizzell's view, yoga has become a new entity, a long way from the *Yoga Sutras* of Patanjali, and while some practitioners are culturally insensitive, others treat it with more respect. Eddo-Lodge agrees that Western yoga is far from Patanjali, but argues that the changes cannot be undone, whether people use it "as a holier-than-thou tool, as a tactic to balance out excessive drug use, or practised similarly to its origins with the spirituality that comes with it".

From a Hindu perspective, the practice of asanas in the Western world as physical exercise is sometimes seen as yoga that has lost its way. In 2012, the Hindu American Foundation ran a "Take Back Yoga" campaign to emphasise yoga's roots in Hinduism.

For women

"Seal" posture from Mary Bagot Stack's Building the Body Beautiful, 1931. It closely resemblesSalabhasana, locust pose; she had learnt some asanas in India in 1912.

In the West, yoga is practiced mainly by women. For example, in Britain in the 1970s, women formed between 70 and 90 percent of most yoga classes, as well as most of the yoga teachers. It has been suggested that yoga was seen as a support for women in the face of male-dominated medicine, offering an alternative approach for chronic medical conditions, as well as to beauty and ageing, and it offered a way of meeting other women. Singleton notes that women in yoga are in the tradition of Mollie Bagot Stack's 1930 League of Health and Beauty, influenced by Stack's visit to India in 1912 when she learnt some asanas, and in turn of Genevieve Stebbins's Harmonic Gymnastics.

Effects

Asanas have, or are claimed to have, multiple effects on the body, both beneficial and harmful. These include the conscious usage of groups of

muscles, effects on health, and possible injury especially in the presence of known contraindications.

Types of asana

Asanas can be classified in different ways, which may overlap: for example, by the position of the head and feet (standing, sitting, reclining, inverted), by whether balancing is required, or by the effect on the spine (forward bend, backbend, twist), giving a set of asana types agreed by most authors. Mittra uses his own categories such as "Floor & Supine Poses". Yogapedia and *Yoga Journal* add "Hip-opening"; Darren Rhodes, Yogapedia and *Yoga Journal* also add "Core strength". The table shows an example of each type of asana, with the title and approximate date of the earliest document describing (not only naming) that asana.

- GS = *Goraksha Sataka*, 10th century
- HY = Hemacandra's *Yogasastra*, 11th century
- VS = *Vasishtha Samhita*, 13th century
- HYP = *Hatha Yoga Pradipika*, 15th century
- JP = *Joga Pradipika*, 18th century
- ST = *Sritattvanidhi*, 19th century
- TK = Tirumalai Krishnamacharya, 20th century

Types of asana, with dates and examples

Type	**Described**	**Date**	**Example**	**English**	**Image**
Standing	TK	20th C.	Parsvakonasana	Side angle	
Sitting Meditation	GS 1:10–12	10th–11th C.	Siddhasana	Accomplished	
Reclining	HYP 1:34	15th C.	Shavasana	Corpse	

Types of asana, with dates and examples					
Type	**Describ ed**	**Dat e**	**Example**	**English**	**Image**
Inverted	HY	11th C.	Sirsasana	Yoga headstand	
Balancin g	VS	13th C.	Kukkutasana	Cockerel	
Forward bend	HYP 1:30	15th C.	Paschimottanasa na	Seated Forward Bend	
Backben d	HYP 1:27	15th C.	Dhanurasana	Bow	
Twisting	HYP 1.28–29	15th C.	Ardha Matsyendrasana	Half Lord of the Fishes	
Hip-opening	HYP 1:20	15th C.	Gomukhasana	Cow Face	

Types of asana, with dates and examples

Type	**Described**	**Date**	**Example**	**English**	**Image**
Core strength	ST	19th C.	Navasana	Boat	

7.8 YOGA/THE TEN PRINCIPLES OF YOGA

- Non-violence (ahimsa) No killing other beings. ...
- Truthfulness (satya) Live in the truth. ...
- Righteousness (asteya) Not stealing, not cheating. ...
- Wisdom (brahmacharia) ...
- Simplicity (aparigraha) ...
- Worship of the spiritual goal (ishvara-pranidhana) ...
- Sacrifice the ego (shaucha) ...

  Yoga/The Ten Principles of Yoga

Maha Aarti in Varanasi, India.

The basis of Yoga are the Yoga Sutras of Patanjali. In it, Patanjali recommends a two-step way. The first stage is the development of positive ethic qualities (the ten yoga principles). Without positive qualities in meditation inner peace will break through the chaos of the outside world again and again. The second stage of the yogic path is to practice meditation. One can say, that Yoga in the essence is based on positive thinking and meditation.

1. **Non-violence (ahimsa)**

   No killing other beings. Be meek. Be peaceful.

2. **Truthfulness (satya)**

   Live in the truth. Basically, be honest with yourself and others. Also no little lies of convenience. A lie is permissible only in well justified situations, for example, if you save with a lie the life of another human being. A Yogi is silent in doubt. Those who consistently lives in the truth radiate truth. Their fellow men trust them.

3. **Righteousness (asteya)**

   Not stealing, not cheating. A Yogi is in professional life generally honest. He does not seek unwarranted advantage, but he is looking for fair trade.

4. **Wisdom (brahmacharia)**

Live in the spiritual focus (in the light/in God = Brahman). Do not serve the money (outer luck) but the inner happiness (God, Brahman, enlightenment). Be centered in your inner happiness and peace.

5. **Simplicity (aparigraha)**

   Be moderate in external enjoyment and consumption. A spiritual person lives modestly outwardly and inwardly rich. A Yogi uses his energy not in outer actions, but lives so peaceful that it turns inward and cleanse his body from the inside. One day, he lives permanently in the light.

6. **Worship of the spiritual goal (ishvara-pranidhana)**

   Thus we do not lose our spiritual path, it is necessary that we remind ourselves again and again to our spiritual goal. We can worship an image (Goddess, Shiva, Patanjali), we can bow before a statue (Buddha, Jesus, Shiva) or speak a mantra (prayer).

7. **Sacrifice the ego (shaucha)**

   Purification / cleaning. The way into the light passes through the crucifixion of the ego. Without a crucifixion there is no enlightenment. True sacrifice is an art. He who sacrifices too much braced themselves internally. Who sacrifices too little, does not solves his tentions.

8. **Self-discipline (tapas)**

   A clear goal, a clear life plan and a clear way of practicing. Tapas means to lead a disciplined life.

9. **Reading (svadhyaya)**

   The daily reading (mantra, meditation) keeps us on the spiritual path, cleanses our spirit, connects us with the enlightened masters and makes us to spiritual victors.

10. **Contentment (santosha)**

    Satisfied with what one has.

7.9 FIVE PRINCIPLES OF YOGA IN HEALTHY BODY

Yoga is an ancient Indian body of knowledge that dates back more than 5000 years ago. The word “Yoga” came from the Sanskrit word “yuj” which means “to unite or integrate.” Yoga then is about the union of a person’s own consciousness and the universal consciousness.

Ancient Yogis had a belief that in order for man to be in harmony with himself and his environment, he has to integrate the body, the mind, and the spirit. For these three to be integrated, emotion, action, and intelligence must be in balance. The Yogis formulated a way to achieve and maintain this balance and it is done through exercise, breathing, and Meditation – the three main Yoga structures.

In Yoga, the body is treated with care and respect for it is the primary instrument in man’s work and growth. Yoga Exercises improve circulation,

stimulate the abdominal organs, and put pressure on the glandular system of the body, which can generally result to better health.

The Five Principles of Yoga are the basis of attaining a healthy body and mind through the Practice of Yoga.

Principle 1: Proper Relaxation

By releasing the tension in the muscles and putting the whole body at rest, you revitalize your Nervous System and achieve inner peace, making you feel relaxed and refreshed. This relaxed feeling is carried over into all your activities and helps you conserve your energy and let go of all worries and fears.

Principle 2: Proper Exercise

This principle revolves around the idea that our physical body is meant to move and exercise.
Proper Exercise is achieved through the Yoga Postures or Asana which systematically works on all parts of the body – stretches and tones the Muscles and Ligaments, enhances the flexibility of the spine and the joints, and improves Blood Circulation. The asanas are designed to regulate the physical and physiological functions of the body. Practicing these Yoga Poses makes your body relaxed, gives you more strength and energy, and rejuvenates the various systems of the body. The Yoga Posture goes together with Proper Breathing. Each movement and stretch should be guided by your breath, making your movement and your breath coordinated and feel like one and the same. The execution of the Asana is beneficial to the body, and at the same time contributes to spiritual and Mental growth.

Principle 3: Proper Breathing

This means breathing fully and rhythmically, making use of all the parts of your Lungs to increase your oxygen intake. Proper Breathing should be deep, slow and rhythmical. To achieve this, you need to be able to regulate the length and duration of your inhalation, exhalation, and the retention of air in your lungs or the pauses between breath. Yoga Breathing Exercises or Pranayama teaches you on how you can recharge your body and control your mental state by regulating the flow of Prana – the life force. This helps you achieve a calmer and more focused mind, and increases your energy level.

Principle 4: Proper Diet

What you eat extremely affects your mind. Improper diet results to mental inefficiency and blocks spiritual awareness. Proper Diet is one that nourishes both mind and body. It should be well balanced and based on natural foods. Proper Diet in Yoga also means eating in moderation and eating only when you are hungry. We sometimes tend to eat when we are upset, using food to fill the gap or the emptiness that we feel. Bad eating habits will cause our senses to be dull that we won't even notice how much we eat or how it tastes and may result to diet related ailments like Obesity and Diabetes. Food should sustain our body. It should keep the body light and supple, the mind calm, and it should also help in keeping a strong immune system.

Principle 5: Positive Thinking and Meditation

The way we think highly affects our way of life. Practice keeping a positive outlook in life, this will facilitate in having a peaceful mind. Positive thinking and Meditation helps you remove negative thoughts and puts your mind under perfect control.

7.10 PRANAYAMA

Prāṇāyāma is the practice of breath control in yoga. In modern yoga as exercise, it consists of synchronising the breath with movements between asanas, but is also a distinct breathing exercise on its own, usually practised after asanas. In texts like the Bhagavad Gita and the Yoga Sutras of Patanjali, and later in Hatha yoga texts, it meant the complete cessation of breathing.

Hinduism

Bhagavad Gītā

Prāṇāyāma is mentioned in verse 4.29 of the Bhagavad Gītā. According to Bhagavad-Gītā As It Is, prāṇāyāma is translated to "trance induced by stopping all breathing", also being made from the two separate Sanskrit words, prāṇa andāyām.

Yoga Sutras of Patanjali

Pranayama is the fourth "limb" of the eight limbs of Ashtanga Yoga mentioned in verse 2.29 in the *Yoga Sutras of Patanjali*. Patanjali, a Hindu Rishi, discusses his specific approach to pranayama in verses 2.49 through 2.51, and devotes verses 2.52 and 2.53 to explaining the benefits of the practice. Patanjali does not fully elucidate the nature of prana, and the theory and practice of pranayama seem to have undergone significant development after him. He presents pranayama as essentially an exercise that is preliminary to concentration, as do the earlier Buddhist texts.

Yoga teachers including B. K. S. Iyengar have advised that pranayama should be part of an overall practice that includes the other limbs of Patanjali's Raja Yoga teachings, especially Yama, Niyama, and Asana.

Hatha yoga

The Indian tradition of Hatha Yoga makes use of various pranayama techniques. The 15th century *Hatha Yoga Pradipika* is a key text of this tradition and includes various forms of pranayama such as Kumbhaka breath retention and various body locks (Bandha). Other forms of pranayama breathing include Ujjayi breath ("Victorious Breath"), Bhastrika("Bellows Breath"), Kapalabhati ("Skull-shining Breath", a Shatkarma purification), Surya Bhedana ("Sun-piercing Breath"), and the soothing Bhramari (buzzing like a bee). B. K. S. Iyengar cautions that pranayama should only be undertaken when one has a firmly established yoga practice and then only under the guidance of an experienced Guru.

According to the scholar-practitioner of yoga Theos Bernard, the ultimate aim of pranayama is the suspension of breathing (kevala kumbhaka), "causing the mind to swoon".Swami Yogananda writes, "The real meaning of Pranayama, according to Patanjali, the founder of Yoga philosophy, is the gradual cessation of breathing, the discontinuance of inhalation and exhalation".

Yoga as exercise

The yoga scholar Andrea Jain states that pranayama was "marginal to the most widely cited sources" before the 20th century, and that the breathing practices were "dramatically" unlike the modern ones; she writes that while pranayama in modern yoga as exercise consists of synchronising the breath with movements (between asanas), in texts like the*Bhagavad Gita* and the *Yoga Sutras of Patanjali*, pranayama meant "complete cessation of breathing", for which she cites Bronkhorst 2007

Buddhism

According to the Pali Buddhist Canon, the Buddha prior to his enlightenment practiced a meditative technique which involved pressing the palate with the tongue and forcibly attempting to restrain the breath. This is described as both extremely painful and not conducive to enlightenment In some Buddhist teachings or metaphors, breathing is said to stop with the fourth jhana, though this is a side-effect of the technique and does not come about as the result of purposeful effort.

The Buddha did incorporate moderate modulation of the length of breath as part of the preliminary tetrad in the Anapanasati Sutta. Its use there is preparation for concentration. According to commentarial literature, this is appropriate for beginners.

Indo-Tibetan tradition

Later Indo-Tibetan developments in Buddhist pranayama which are similar to Hindu forms can be seen as early as the 11th century, in the Buddhist text titled the *Amṛtasiddhi*, which teaches three bandhas in connection with yogic breathing (kumbakha).

Tibetan Buddhist breathing exercises such as the "nine breathings of purification" or the "Ninefold Expulsion of Stale Vital Energy" (*rlung ro dgu shrugs*), a form of alternate nostril breathing, commonly include visualizations. In the Nyingma tradition of Dzogchen these practices are collected in the textual cycle known as "The Oral Transmission ofVairotsana" (*Vai ro snyan brgyud*).

Medical Benefits

Several researchers have reported that pranayama techniques are beneficial treating a range of stress-related disorders. A Cochrane systematic review on the symptomaticrelief of asthma by breathing exercises did not find a statistically significant improvement but did find that there was a statistically significant increase in the dose of histamineneeded to provoke a 20% reduction in FEV1 (PD20) during pranayama breathing but not with the placebo device.

Risks

Although relatively safe, Hatha Yoga is not risk free. Beginners should avoid advanced moves and exercise within their capabilities. Functional limitations should be taken into consideration. According to at least one study, pranayama was the yoga practice leading to most injuries, with four injuries in a study of 76 practitioners. There have been limited reports of adverse effects including haematoma and pneumothorax, though the connections are not always well established.

7.11TERMINOLOGIES

1.Medical care 2. Social Support 3. Measurement 4. Yoga Asanas 5. Pranayama

7.12 MODEL QUESTIONS

1. Explain the Psychological impact?
2. Discuss the quality of life?
3. Bring out the Quantitative measurement?
4. Discuss the principles of Yoga?
5. Discuss the Pranayama?

7.13 REFERENCE BOOKS

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UNIT-VIII HEALTH PSYCHOLOGY

Structure

8.1 INTRODUCTION

Health psychology deals with comprehending the way biology, behavior, and social contexts affect health and illness. Psychologists who study how biological, behavioral, and social factors affect health and illness are known as health psychologists. Fresh advances in psychological, medical, and physiological studies have led to a new way of thinking about health and disease. This school of thought , labeled the bio-psychosocial model, looks at health and illness as the product of a blend of factors which includes biological traits (e.g., genetic predisposition), social setting (influences of culture, relations with family, support of the society), and behavior (e.g., health beliefs, stress, lifestyle). Psychologists who study the influence of social factors, biological factors, behavioral, and social factors on health and illness are known as health psychologists.

Health psychologists aim at indentifying behaviors and experiences that are healthy, cause illness, and control the efficiency of health care. They also propose ways of improving health care and health-care policy. To promote health and prevent illness health psychologists also develop ways of overcoming addictions. They study the relationship between illness and individual traits. Contextual factors, such as social, economic, lifestyle,

cultural, and society, factors that influence health are also a concern to health psychologists. Health psychologists seek to transform health behaviors for the twin intention of promoting people's health and aiding patients stick to disease treatment regimens. Through advocating for behavioral change, they seek to promote health.

Health psychologists probe how disease affects psychological health of an individual. An injured or ill person has to deal with various diverse practical stressors. These stressors may cause depression, lowered self-esteem, etc. Health psychology also strives to make the lives of people with terminal sickness better. By assisting the sick to regain at least a part of their psychological health, health psychologist assists in improving the quality of life of their patients.

Meaning

Health psychology is the study of psychological and behavioral processes in health, illness, and healthcare. It is concerned with understanding how psychological, behavioral, and cultural factors contribute to physical health and illness. Psychological factors can affect health directly.

8.2 TYPES OF HEALTH PSYCHOLOGY

Clinical health psychology (ClHP)

ClHP is the application of scientific knowledge, derived from the field of health psychology, to clinical questions that may arise across the spectrum of health care. ClHP is one of many specialty practice areas for clinical psychologists. It is also a major contributor to the prevention-focused field of behavioral health and the treatment-oriented field ofbehavioral medicine. Clinical practice includes education, the techniques of behavior change, and psychotherapy. In some countries, a clinical health psychologist, with additional training, can become a medical psychologist and, thereby, obtain prescription privileges.

Public health psychology (PHP)

PHP is population oriented. A major aim of PHP is to investigate potential causal links between psychosocial factors and health at the population level. Public health psychologists present research results to educators, policy makers, and health care providers in order to promote better public health. PHP is allied to other public health disciplines including epidemiology, nutrition, genetics and biostatistics. Some PHP interventions are targeted toward at-risk population groups (e.g., undereducated, single pregnant women who smoke) and not the population as a whole (e.g., all pregnant women).

Community health psychology (CoHP)

CoHP investigates community factors that contribute to the health and well-being of individuals who live in communities. CoHP also develops community-level interventions that are designed to combat

disease and promote physical and mental health. The community often serves as the level of analysis, and is frequently sought as a partner in health-related interventions.

Critical health psychology (CrHP)

CrHP is concerned with the distribution of power and the impact of power differentials on health experience and behavior, health care systems, and health policy. CrHP prioritizes social justice and the universal right to health for people of all races, genders, ages, and socioeconomic positions. A major concern is health inequalities. The critical health psychologist is an agent of change, not simply an analyst or cataloger. A leading organization in this area is the International Society of Critical Health Psychology.

Health psychology, like other areas of applied psychology, is both a theoretical and applied field. Health psychologists employ diverse research methods. These methods include controlled randomized experiments, quasi-experiments, longitudinal studies, time-series designs, cross-sectional studies, case-control studies, qualitative research as well asaction research. Health psychologists study a broad range of health phenomena including cardiovascular disease, (cardiac psychology), smoking habits, the relation of religious beliefs to health, alcohol use, social support, living conditions, emotional state, social class, and more. Some health psychologists treat individuals with sleep problems, headaches, alcohol problems, etc. Other health psychologists work to empower community members by helping community members gain control over their health and improve quality of life of entire communities.

8.3 HEALTH PSYCHOLOGIST ROLES

Below are some examples of the types of positions held by health psychologists within applied settings such as the UK's NHS and private practice.

- **Consultant health psychologist**: A consultant health psychologist will take a lead for health psychology within public health, including managing tobacco control and smoking cessation services and providing professional leadership in the management of health trainers.
- **Principal health psychologist**: A principal health psychologist could, for example lead the health psychology service within one of the UK's leading heart and lung hospitals, providing a clinical service to patients and advising all members of the multidisciplinary team.
- **Health psychologist**: An example of a health psychologist's role would be to provide health psychology input to a center for weight management. Psychological assessment of treatment, development and delivery of a tailored weight management program, and advising on

approaches to improve adherence to health advice and medical treatment.

- **Research psychologist**: Research health psychologists carry out health psychology research, for example, exploring the psychological impact of receiving a diagnosis of dementia, or evaluating ways of providing psychological support for people with burn injuries. Research can also be in the area of health promotion, for example investigating the determinants of healthy eating or physical activity or understanding why people misuse substances.
- **Health psychologist in training/assistant health psychologist**: As an assistant/in training, a health psychologist will gain experience assessing patients, delivering psychological interventions to change health behaviors, and conducting research, whilst being supervised by a qualified health psychologist.

8.4 IMPORTANT STEPS

When applying the TPB as a theoretical framework, certain steps should be followed to promote increased validity of results. First, target behaviour should be specified in terms of action, target, context, and time. For example, the goal might be to "consume at least one serving of whole grains during breakfast each day in the forthcoming month". In this statement, "consuming" is the action, "one serving of whole grains" is the target, "during breakfast each day" is the context, and "in the forthcoming month" is the time. Once a goal is specified, an elicitation phase can be used to identify salient issues. The pertinent and central beliefs for a certain behaviour may be very different for different populations. Therefore, conducting open-ended elicitation interviews is one of the most crucial steps in applying the TPB. Elicitation interviews help to identify relevant behavioural outcomes, referents, cultural factors, facilitators, and barriers for each particular behaviour and target population under investigation.[40] The following are sample questions that may be used during an elicitation interview:

- What do you like/ dislike about behaviour X?
- What are some disadvantages of doing behaviour X?
- Who would be against your doing behaviour X?
- Who can you think of that would do behaviour X?
- What things make it hard for you to do behaviour X?
- If you want to do behaviour X, how certain are you that you can?

However, the action, target, context and time construct shows little applicability when one engages in consuming luxury or fashion

goods, especially as one's need is not present. For example, the goal might be to "buy three pairs of luxury high heels in the forthcoming month". In this statement, "buying" is the action, "three pairs of high heels" is the target, "luxury goods" is the context, and "in the forthcoming month" is the time. In normal circumstances, once the goal is specified, the elicitation phase can be used to identify salient issues but not in this case as the need behind buying the shoes (wedding, sport, to show off, to feel good, to match with an existing outfit) primes in the decision making and therefore in the resulted behaviour.

Also, while the pertinent and central beliefs for a certain behaviour may be very different for different populations, the questionnaire can then be designed, based on results from the elicitation interview, to measure model constructs with attention to cultural issues. After implementation of the questionnaire, thorough analysis should be conducted to assess whether the intervention influenced model constructs associated with intention and behaviour. Results and findings from the analysis can be used to develop effective interventions for eliciting behavioural change, especially within nutrition and health but not for luxury or fashion goods where one's need behind his purchase intentions (behaviour) are in most social context cases to associate, dissociate or show status.

8.5 ASSUMPTIONS OF HEALTH PSYCHOLOGY

Throughout this book, several assumptions central to health psychology have been

highlighted. These include the following:

The mind–body splitHealth psychology sets out to provide an integrated model of the individual by establishing a holistic approach to health. Therefore, it challenges the traditional medical modelof the mind–body split and provides theories and research to support the notion of amind and body that are one. For example, it suggests beliefs influence behaviour, whichin turn influences health; that stress can cause illness and that pain is a perception rather than a sensation. In addition, it argues that illness cognitions relate to recovery from illness and coping relates to longevity. However, does this approach really represent an integrated individual? Although all these perspectives and the research that has been carried out in their support indicate that the mind and the body interact, they are still defined as separate. The mind reflects the individuals' psychological states (i.e. their beliefs, cognitions, perceptions), which influence but are separate to their bodies (i.e. the illness, the body, the body's systems).Dividing up the soup Health psychology

describes variables such as beliefs (risk perception, outcomeexpectancies, costs and benefits, intentions, implementation intentions), emotions (fear,

depression, anxiety) and behaviours (smoking, drinking, eating, screening) as separate and discrete. It then develops models and theories to examine how these variables interrelate. For example, it asks, 'What beliefs predict smoking?', 'What emotions relate to screening?' Therefore, it separates out 'the soup' into discrete entities and then tries to put them back together. However, perhaps these different beliefs, emotions and behaviours were not separate until psychology came along. Is there really a difference between all the different beliefs? Is the thought 'I am depressed' a cognition or an emotion? When I am sitting quietly thinking, am I behaving? Health psychology assumes differences and then looks for association. However, perhaps without the original separation there would be nothing to separate!

8.6 PSYCHOLOGICAL AND PSYCHO-PHYSIOLOGICAL CONCEPTS IN HEALTH PSYCHOLOGY

Psychology is the science of mind and behavior. By understanding humanity, that is, through discovering the universal principles and studying specific cases, its aims at benefiting the society. A professional practitioner in this field is known as a psychologist. Psychology, as a field of study, endeavors to understand the role played by mental functions in individual and also social behavior. It also explores the neurobiological and physiological processes that cause some functions and behaviors. Psychology investigates concepts like cognation, attention perception, phenomenology motivation, personality, emotion, behavior, interpersonal relationships, and brain functioning. Depth psychologists, even consider the unconscious mind. This psychological knowledge is in general was practical to the evaluation and management of mental health problems. Among other applications, the knowledge is also applied to understanding and solving problems in physiological health.

8.7 MODELS OF HEALTH

It is generally recognized that there are two models of health, namely, biomedical and bio-psychosocial models. Biomedical model focuses on treatment and elimination of symptoms, while bio-psychosocial model focuses on individual's perception of their symptoms and how they and their families respond to symptoms they are experiencing .Also Deacon asserts that under the biomedical model, illnesses were understood as having physiological aetiologies that were diagnosed through distinct biochemical markers and were to be treated through physical interventions. This chapter however is primarily

focusing only on the bio-psychosocial models of health. Its founder, Engel discovered that bio-psychosocial model represents the contribution of biological, psychological and social factors in determining health. Table 1 shows the differences between the two models.

Focal area	Biomedical model	Bio-psychosocial model
What causes illness?	Biological factors (chemical imbalances, bacteria, viruses and genetic predisposition)	Biological (virus), psychological (beliefs, behaviour) and social (unemployment)
Who is responsible for illness?	Individuals are regarded as victims of some external force causing internal changes. Because illness is seen as a result of biological changes beyond their control, individuals are not seen as responsible for their illness	Individuals should be held responsible for his/her health and illness
How should illness be treated?	Through vaccination, surgery, chemotherapy and radiotherapy, all of which aim to change the physical state of the body	The whole person should be treated, e.g. behaviour change, change in beliefs and coping strategies and compliance with medical recommendations
Who is responsible for treatment?	The responsibility for treatment rests with the medical profession	The focus is the whole person to be treated not just their physical illness; the patient is therefore responsible for their treatment (e.g. taking the medication or changing their behaviour)
What is the relationship between health and illness?	Health and illness are seen as qualitatively different—you are either healthy or ill—there is no continuum between the two	Health and illness exist on a continuum. Individuals progress along this continuum from health to illness and back again
What is the relationship between the mind and the body?	The mind and body function independently of each other. In other words, the mind and body are separate entities	The focus is on an interaction between the mind and the body. The mind and body interact

Focal area	Biomedical model	Bio-psychosocial model
What is the role of psychology in health and illness?	Illness may have psychological consequences, but not psychological causes (e.g. cancer may cause unhappiness, but mood is not seen as related to either the onset or progression of the cancer)	Psychological factors not only as possible consequences of illness but as contributing to it at all stages along the continuum from healthy to being ill

Table 1.

Comparing biomedical and bio-psychosocial models of health.

Within health psychology one model that has enjoyed considerable popularity is the 'stress-diathesis' model (Steptoe cited in)which is currently called bio-psychosocial model. This model was first described by G.L. Engel in 1977. It emphasizes the interactive effect of environment and individual vulnerability (genetic and psychological characteristics) factors upon health .According to bio-psychosocial model, psychological, physical and social threats present demands upon an individual's resources and capacity for coping which give rise to physiological reactions involving the autonomic nervous system (ANS) and endocrine and immune system of the body.

The effects include both short-term and long-term components, and these may have consequences on health depending upon the individual's predisposition or vulnerability to adverse effects. Vulnerable individuals develop chronic allostatic reactions such as reduced immunocompetence or exaggerated sympathetic activation of the ANS or increased secretion of adrenal hormones. Physiological reactions of these types have been implicated in the development of many disease states, including cancers, cardiovascular diseases and other non-communicable diseases susceptibility to infections The following section presents the strengths and critical views of bio-psychosocial model.

8.8 STRENGTHS OF BIO-PSYCHOSOCIAL MODEL

Bio-psychosocial model benefits the patients and healthcare system as revealed by research

Guiding application of medical knowledge to the needs of each patient.

Improved patient satisfaction, better adherence to prescriptions, more maintained behaviour change, better physical and psychological health and less of a tendency to initiate malpractice litigations.

Development and application of techniques to reduce health risk behaviour.

Reduce multiple visits and admission into hospitals.

- Individuals with health challenges are acknowledged to be active participants in the recovery process and good health, rather than mere passive victims.
- Increase efficiency of care by reducing unnecessary prescription of drugs (i.e. diabetes and other chronic conditions).
- Development of psychological techniques in the strengthening of immune reaction to illness.
- Bio-psychosocial model can be used as a predictor of pain and other psychosocial problems resulting into development appropriate prevention and intervention strategies.
- Improvement of communication between health staff and the patients.
- Development and introduction of programmes of life quality improvement for chronic patients, physically disabled individuals and the elderly patients.
- A significant influence on contemporary understanding of mental health difficulties.
- Development and application of psychosocial support for the terminally ill patients and their families.

8.9 CRITICAL VIEWS OF BIO-PSYCHOSOCIAL MODEL

A list of critical views of bio-psychosocial model has been noted in literature as follows:

- Time-consuming and expensive apply.
- It requires more information be gathered during the assessment about an individual’s socioeconomic status, culture, religion, as well as psychological factors that might affect the individual’s condition.
- There is a lack of theoretical basis of bio-psychosocial model and scientific evidence to support the model.
- The complex relations between causes and effects of biological, psychological and social factors to influence the state of health and or occurrence of diseases.
- The holistic nature of the bio-psychosocial model makes it a luxury many healthcare systems in resource-poor settings cannot afford.
- Insufficient training opportunities or financial resources available to support the existence of multidisciplinary teams consisting of psychiatrists, clinical psychologists, mental health nurses and social welfare workers to allow for a full understanding of the biological, psychological and social factors involved in individual’s condition.

- The model's failure to provide straightforward guidelines for clinical treatment or rules for prioritization in clinical practice.
- Medical students receive very limited amount of content in psychosocial subjects compared to biomedical-oriented courses.
- The focus of this chapter was mainly on integrating bio-psychosocial model in public health discipline. Authors like Nadir et al. found that bio-psychosocial model has been a mainstay in the ideal practice of modern medicine. It is attributed to improve patient care, compliance and satisfaction and to reduce physician-patient conflict. Both strengths and critical views of bio-psychosocial model were presented in the chapter. Even though it appears that patients and healthcare system are likely to benefit from the utilization of bio-psychosocial model, further research is still needed to determine whether or not bio-psychosocial model is a workable model in healthcare system to benefit all patients. In particular, more knowledge about how psychosocial factors can influence health and disease remain unclear to most public health professionals.

8.10 TERMINOLOGIES

1. Health 2. Psychologist 3. Assumptions 4. Psychological 5. Strength

8.11 MODEL QUESTIONS

1. Explain the types of Health psychology?
2. Discuss the roles of Health psychology?
3. Bring out the Important steps in Health psychology?
4. Discuss the Models of Health?
5. Discuss the critical views of bio-psycholsocialmodel?

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UNIT-IX THEORIES

Structure

9.1 INTRODUCTION

Social cognitive theory (SCT), used in psychology, education, and communication, holds that portions of an individual's knowledge acquisition can be directly related to observing others within the context of social interactions, experiences, and outside media influences. This theory was advanced by Albert Bandura as an extension of his social learning theory. The theory states that when people observe a model performing a behavior and the consequences of that behavior, they remember the sequence of events and use this information to guide subsequent behaviors. Observing a model can also prompt the viewer to engage in behavior they already learned. In other words, people do not learn new behaviors solely by trying them and either succeeding or failing, but rather, the survival of humanity is dependent upon the replication of the actions of others. Depending on whether people are rewarded or punished for their behavior and the outcome of the behavior, the observer may choose to replicate behavior modeled. Media provides models for a vast array of people in many different environmental settings.

Social cognitive theory is a learning theory based gists agree that the environment one grows up in contributes to behavior, the individual person

(and therefore cognition) is just as important. People learn by observing others, with the environment, behavior, and cognition acting as primary factors that influence development in a reciprocal triadic relationship. Each behavior witnessed can change a person's way of thinking (cognition). Similarly, the environment one is raised in may influence later behaviors. For example, a caregiver's mindset (also cognition) determines the environment in which their children are raised.

The core concepts of this theory are explained by Bandura through a schematization of triadic reciprocal causation. The schema shows how the reproduction of an observed behavior is influenced by Get the learner to believe in his or her personal abilities to correctly complete a behavior).

1. Behavioral: The response an individual receives after they perform a behavior (i.e. Provide chances for the learner to experience successful learning as a result of performing the behavior correctly).
2. Environmental: Aspects of the environment or setting that influence the individual's ability to successfully complete a behavior (i.e. Make environmental conditions conducive for improved self-efficacy by providing appropriate support and materials).

It is important to note that learning can occur without a change in behavior. According to J.E. Ormrod's general principles of social learning, while a visible change in behavior is the most common proof of learning, it is not absolutely necessary. Social learning theorists believe that because people can learn through observation alone, their learning may not necessarily be shown in their performance. These are interdependent on each other and its influence can be directly linked with individual or group psychological behavior. According to Alex Stajkovic and Fred Luthans it is critically important to recognize that the relative influences exerted by one, two, or three interacting factors on motivated behavior will vary depending on different activities, different individuals and different circumstances.

Meaning

Social cognitive theory, used in psychology, education, and communication, holds that portions of an individual's knowledge acquisition can be directly related to observing others within the context of social interactions, experiences, and outside media influences

9.2 THEORETICAL FOUNDATIONS

Human agency

Social cognitive theory is proposed in an agentic perspective, which suggests that, instead of being just shaped by environments or inner forces, individuals are self-developing, self-regulating, self-reflecting and proactive. Specifically, human agency operates within three modes:

- Individual Agency: A person’s own influence on the environment;

- Proxy Agency: Another person's effort on securing the individual's interests;
- Collective Agency: A group of people work together to achieve the common benefits.

Human agency has four core properties:

- Intentionality: Individuals' active decision on engaging in certain activities;
- Forethought: Individuals' ability to anticipate the outcome of certain actions;
- Self-reactiveness: Individuals' ability to construct and regulate appropriate behaviors;
- Self-reflectiveness: Individuals' ability to reflect and evaluate the soundness of their cognitions and behaviors.

Human capability

Evolving over time, human beings are featured with advanced neural systems, which enable individuals to acquire knowledge and skills by both direct and symbolic terms. Four primary capabilities are addressed as important foundations of social cognitive theory: symbolizing capability, self-regulation capability, self-reflective capability, and vicarious capability.

1. **Symbolizing Capability**: People are affected not only by direct experience but also indirect events. Instead of merely learning through laborious trial-and-error process, human beings are able to symbolically perceive events conveyed in messages, construct possible solutions, and evaluate the anticipated outcomes.
2. **Self-regulation Capability**: Individuals can regulate their own intentions and behaviors by themselves. Self-regulation lies on both negative and positive feedback systems, in which discrepancy reduction and discrepancy production are involved. That is, individuals proactively motivate and guide their actions by setting challenging goals and then making effort to fulfill them. In doing so, individuals gain skills, resources, self-efficacy and beyond.
3. **Self-reflective Capability**: Human beings can evaluate their thoughts and actions by themselves, which is identified as another distinct feature of human beings. By verifying the adequacy and soundness of their thoughts through enactive, various, social, or logical manner, individuals can generate new ideas, adjust their thoughts, and take actions accordingly.
4. **Vicarious Capability:** One critical ability human beings feature is the ability to adopt skills and knowledge from information communicated through a wide array of mediums. By vicariously observing others' actions and their consequences, individuals can gain insights into their own activities. Vicarious capability is of great value to human beings' cognitive development in nowadays, in which most of our information

encountered in our lives derives from the mass media than trial-and-error processes.

9.3 MODELING

Social cognitive theory revolves around the process of knowledge acquisition or learning directly correlated to the observation of models. The models can be those of an interpersonal imitation or media sources. Effective modeling teaches general rules and strategies for dealing with different situations.

To illustrate that people learn from watching others, Albert Bandura and his colleagues constructed a series of experiments using a Bobo doll. In the first experiment, children were exposed to either an aggressive or non-aggressive model of either the same sex or opposite sex as the child. There was also a control group. The aggressive models played with the Bobo doll in an aggressive manner, while the non-aggressive models played with other toys. They found that children who were exposed to the aggressive models performed more aggressive actions toward the Bobo doll afterward, and that boys were more likely to do so than girls.

Observations should include:

- **Attention Observers** selectively give attention to specific social behavior depending on accessibility, relevance, complexity, functional value of the behavior or some observer's personal attributes such as cognitive capability, value preference, preconceptions.
- **Retention Observe** a behavior and subsequent consequences, then convert that observation to a symbol that can be accessed for future reenactments of the behavior. Note: When a *positive behavior* is shown a positive reinforcement should follow, this parallel is similar for *negative behavior*.
- **Production** refers to the symbolic representation of the original behavior being translated into action through reproduction of the observed behavior in seemingly appropriate contexts. During reproduction of the behavior, a person receives feedback from others and can adjust their representation for future references.
- **Motivational process reenacts** a behavior depending on responses and consequences the observer receives when reenacting that behavior.

Modeling does not limit to only live demonstrations but also verbal and written behaviour can act as indirect forms of modeling. Modeling not only allows students to learn behaviour that they should repeat but also to inhibit certain behaviours. For instance, if a teacher glares at one student who is talking out of turn, other students may suppress this behavior to avoid a similar reaction. Teachers model both material objectives and underlying curriculum of virtuous living. Teachers should also be dedicated to the building of high self-efficacy levels in their students by recognizing their accomplishments.

9.4 SELF-EFFICACY CAN BE DEVELOPED OR INCREASED BY:

- **Mastery experience**, which is a process that helps an individual achieve simple tasks that lead to more complex objectives.
- **Social modeling** provides an identifiable model that shows the processes that accomplish a behavior.
- **Improving physical and emotional states** refers to ensuring a person is rested and relaxed prior to attempting a new behavior. The less relaxed, the less patient, the more likely they won't attain the goal behavior.
- **Verbal persuasion** is providing encouragement for a person to complete a task or achieve a certain behavior.

For example, students become more effortful, active, pay attention, highly motivated and better learners when they perceive that they have mastered a particular task. It is the duty of the teacher to allow student to perceive in their efficacy by providing feedback to understand their level of proficiency. Teachers should ensure that the students have the knowledge and strategies they need to complete the tasks.

Self-efficacy has also been used to predict behavior in various health related situations such as weight loss, quitting smoking, and recovery from heart attack. In relation to exercise science, self-efficacy has produced some of the most consistent results revealing an increase in participation in exercise.

9.5 THEORY OF PLANNED BEHAVIOUR

In psychology, the theory of planned behaviour (abbreviated TPB) is a theory that links one's beliefs and behaviour. The theory states that intention toward attitude, subject norms, and perceived behavioural control, together shape an individual's behavioural intentions and behaviours.The concept was proposed by Icek Ajzen to improve on the predictive power of the theory of reasoned action by including perceived behavioural control. It has been applied to studies of the relations among beliefs, attitudes, behavioural intentions and behaviours in various fields such as advertising, public relations, advertising campaigns, healthcare, sport management and sustainability.

Meaning

In psychology, the theory of planned behaviour is a theory that links one's beliefs and behaviour. The theory states that intention toward attitude, subject norms, and perceived behavioural control, together shape an individual's behavioural intentions and behaviours.

Normative beliefs and subjective norms

- **Normative belief**: an individual's perception of social normative pressures, or relevant others' beliefs that they should or should not perform such behaviour.

- **Subjective norm**: an individual's perception about the particular behaviour, which is influenced by the judgment of significant others (e.g., parents, spouse, friends, teachers).

Control beliefs and perceived behavioural control

- **Control beliefs**: an individual's beliefs about the presence of factors that may facilitate or hinder performance of the behaviour. The concept of perceived behavioural control is conceptually related to self-efficacy.
- **Perceived behavioural control**: an individual's perceived ease or difficulty of performing the particular behaviour. It is assumed that perceived behavioural control is determined by the total set of accessible control beliefs.

Behavioural intention and behaviour

- **Behavioural intention**: an indication of an individual's readiness to perform a given behaviour. It is assumed to be an immediate antecedent of behaviour. It is based on attitude toward the behaviour, subjective norm, and perceived behavioural control, with each predictor weighted for its importance in relation to the behaviour and population of interest.
- **Behaviour**: an individual's observable response in a given situation with respect to a given target. Ajzen said a behaviour is a function of compatible intentions and perceptions of behavioural control in that perceived behavioural control is expected to moderate the effect of intention on behaviour, such that a favorable intention produces the behaviour only when perceived behavioural control is strong

Conceptual / operational comparison

Perceived behavioural control vs. self-efficacy

As Ajzen (1991) stated in the theory of planned behaviour, knowledge of the role of perceived behavioural control came from Bandura's concept of self-efficacy. More recently, Fishbein and Cappella stated that self-efficacy is the same as perceived behavioural control in his integrative model, which is also measured by items of self-efficacy in a previous study.

In previous studies, the construction and the number of item inventory of perceived behavioural control have depended on each particular health topic. For example, for smoking topics, it is usually measured by items such as "I don't think I am addicted because I can really just not smoke and not crave for it," and "It would be really easy for me to quit."

The concept of self-efficacy is rooted in Bandura's social cognitive theory. It refers to the conviction that one can successfully execute the behaviour required to produce the outcome. The concept of self-efficacy is used as perceived behavioural control, which means the perception of the ease or difficulty of the particular behaviour. It is linked to control beliefs, which refers to beliefs about the presence of factors that may facilitate or impede performance of the behaviour.

It is usually measured with items which begins with the stem, "I am sure I can ... (e.g., exercise, quit smoking, etc.)" through a self-report instrument in their questionnaires. Namely, it tries to measure the confidence toward the probability, feasibility, or likelihood of executing given behaviour.

9.6 SOCIAL INFLUENCE

The concept of social influence has been assessed by the social norm and normative belief in both the theory of reasoned action and theory of planned behaviour. Individuals' elaborative thoughts on subjective norms are perceptions on whether they are expected by their friends, family and the society to perform the recommended behaviour. Social influence is measured by evaluation of various social groups. For example, in the case of smoking:

1. Subjective norms from the peer group include thoughts such as, "Most of my friends smoke," or "I feel ashamed of smoking in front of a group of friends who don't smoke";
2. Subjective norms from the family include thoughts such as, "All of my family smokes, and it seems natural to start smoking," or "My parents were really mad at me when I started smoking"; and
3. Subjective norms from society or culture include thoughts such as, "Everyone is against smoking," and "We just assume everyone is a nonsmoker."

While most models are conceptualized within individual cognitive space, the theory of planned behaviour considers social influence such as social norm and normative belief, based on collectivistic culture-related variables. Given that an individual's behaviour (e.g., health-related decision-making such as diet, condom use, quitting smoking and drinking, etc.) might very well be located in and dependent on the social networks and organization (e.g., peer group, family, school and workplace), social influence has been a welcomed addition.

Model

Human behaviour is guided by three kinds of consideration: behavioural beliefs, normative beliefs, and control beliefs. In their respective aggregates, behavioural beliefs produce a favorable or unfavorable attitude toward the behaviour, normative beliefs result in a subjective norm, and control beliefs gives rise to perceived behavioural control.

In combination, the attitude toward the behaviour, the subjective norm, and the perceived behavioural control lead to the formation of a behavioural intention. In particular, perceived behavioural control is presumed not only to affect actual behaviour directly, but also to affect it indirectly through behavioural intention.

As a general rule, the more favorable the attitude toward behaviour and the subjective norm, and the greater the perceived behavioural control, the stronger the person's intention to perform the behaviour should be. Finally,

given a sufficient degree of actual control over the behaviour, people are expected to carry out their intentions when the opportunity arises.

Formula

In a simple form, behavioural intention for the theory of planned behaviour can be expressed as the following mathematical function:

The three factors being proportional to their underlying beliefs:

BI: Behavioural intention

A: Attitude toward behaviour

b: the strength of each belief concerning an outcome or attribute

e: the evaluation of the outcome or attribute

SN: Subjective norm

n: the strength of each normative belief of each referent

m: the motivation to comply with the referent

PBC: Perceived Behavioural Control

c: the strength of each control belief

p: the perceived power of the control factor

w : empirically derived weight/coefficient

To the extent that it is an accurate reflection of actual behavioural control, perceived behavioural control can, together with intention, be used to predict behaviour.

B: Behaviour

BI: Behavioural intention

PBC: Perceived Behavioural Control

c: the strength of each control belief

p: the perceived power of the control factor

w : empirically derived weight/coefficient

9.7 HEALTH BELIEF MODEL

The health belief model (HBM) is a social psychological health behavior change model developed particularly in regard to the uptake of health

services. The HBM was developed in the 1950s by social psychologists at the U.S. Public Health Service and remains one of the best known and most widely used theories in health behavior research. The HBM suggests that people's beliefs about health problems, perceived benefits of action and barriers to action, and self-efficacy explain engagement (or lack of engagement) in health-promoting behavior. A stimulus, or cue to action, must also be present in order to trigger the health-promoting behavior. to explain and predict health-related behaviors,

Meaning

The health belief model is a social psychological health behavior change model developed to explain and predict health-related behaviors, particularly in regard to the uptake of health services.

Theoretical Constructs

The HBM theoretical constructs originate from theories in Cognitive Psychology. In early twentieth century, cognitive theorists believed that reinforcements operated by affecting expectations rather than by affecting behavior straightly. Mental processes are severe constitutes of cognitive theories that are seen as expectancy-value models, because they propose that behavior is a function of the degree to which people value a result and their evaluation of the expectation, that a certain action will lead that result. In terms of the health-related behaviors, the value is avoiding sickness. The expectation is that a certain health action could prevent the condition for which people consider they might be at risk.

The following constructs of the HBM are proposed to vary between individuals and predict engagement in health-related behaviors.

Perceived susceptibility

Perceived susceptibility refers to subjective assessment of risk of developing a health problem. The HBM predicts that individuals who perceive that they are susceptible to a particular health problem will engage in behaviors to reduce their risk of developing the health problem. Individuals with low perceived susceptibility may deny that they are at risk for contracting a particular illness. Others may acknowledge the possibility that they could develop the illness, but believe it is unlikely. Individuals who believe they are at low risk of developing an illness are more likely to engage in unhealthy, or risky, behaviors. Individuals who perceive a high risk that they will be personally affected by a particular health problem are more likely to engage in behaviors to decrease their risk of developing the condition.

The combination of perceived severity and perceived susceptibility is referred to as perceived threat. Perceived severity and perceived susceptibility to a given health condition depend on knowledge about the condition.The HBM predicts that higher perceived threat leads to a higher likelihood of engagement in health-promoting behaviors.

Perceived severity

Perceived severity refers to the subjective assessment of the severity of a health problem and its potential consequences. The HBM proposes that individuals who perceive a given health problem as serious are more likely to engage in behaviors to prevent the health problem from occurring (or reduce its severity). Perceived seriousness encompasses beliefs about the disease itself (e.g., whether it is life-threatening or may cause disability or pain) as well as broader impacts of the disease on functioning in work and social roles. For instance, an individual may perceive that influenza is not medically serious, but if he or she perceives that there would be serious financial consequences as a result of being absent from work for several days, then he or she may perceive influenza to be a particularly serious condition.

Perceived benefits

Health-related behaviors are also influenced by the perceived benefits of taking action. Perceived benefits refer to an individual's assessment of the value or efficacy of engaging in a health-promoting behavior to decrease risk of disease. If an individual believes that a particular action will reduce susceptibility to a health problem or decrease its seriousness, then he or she is likely to engage in that behavior regardless of objective facts regarding the effectiveness of the action. For example, individuals who believe that wearing sunscreen prevents skin cancer are more likely to wear sunscreen than individuals who believe that wearing sunscreen will not prevent the occurrence of skin cancer.

Perceived barriers

Health-related behaviors are also a function of perceived barriers to taking action. Perceived barriers refer to an individual's assessment of the obstacles to behavior change. Even if an individual perceives a health condition as threatening and believes that a particular action will effectively reduce the threat, barriers may prevent engagement in the health-promoting behavior. In other words, the perceived benefits must outweigh the perceived barriers in order for behavior change to occur. Perceived barriers to taking action include the perceived inconvenience, expense, danger (e.g., side effects of a medical procedure) and discomfort (e.g., pain, emotional upset) involved in engaging in the behavior. For instance, lack of access to affordable health care and the perception that a flu vaccine shot will cause significant pain may act as barriers to receiving the flu vaccine. In a study about the breast and cervical cancer screening among Hispanic women, perceived barriers, like fear of cancer, embarrassment, fatalistic views of cancer and language, was proved to impede screening.

Modifying variables

Individual characteristics, including demographic, psychosocial, and structural variables, can affect perceptions (i.e., perceived seriousness, susceptibility, benefits, and barriers) of health-related behaviors. Demographic variables include age, sex, race, ethnicity, and education, among others. Psychosocial variables include personality, social class, and peer and reference group

pressure, among others. Structural variables include knowledge about a given disease and prior contact with the disease, among other factors. The HBM suggests that modifying variables affect health-related behaviors indirectly by affecting perceived seriousness, susceptibility, benefits, and barriers.

Limitations

The HBM attempts to predict health-related behaviors by accounting for individual differences in beliefs and attitudes .However, it does not account for other factors that influence health behaviors. For instance, habitual health-related behaviors (e.g., smoking, seatbelt buckling) may become relatively independent of conscious health-related decision making processes. Additionally, individuals engage in some health-related behaviors for reasons unrelated to health (e.g., exercising for aesthetic reasons). Environmental factors outside an individual's control may prevent engagement in desired behaviors. For example, an individual living in a dangerous neighborhood may be unable to go for a jog outdoors due to safety concerns. Furthermore, the HBM does not consider the impact of emotions on health-related behavior. Evidence suggests that fear may be a key factor in predicting health-related behavior.

Alternative factors may predict health behavior, such as outcome expectancy (i.e., whether the person feels they will be healthier as a result of their behavior) and self-efficacy (i.e., the person's belief in their ability to carry out preventive behavior).

9.8 PROTECTION MOTIVATION THEORY

Protection motivation theory is a theory that was originally created to help clarify fear appeals. The protection motivation theory proposes that people protect themselves based on four factors: the perceived severity of a threatening event, the perceived probability of the occurrence, or vulnerability, the efficacy of the recommended preventive behavior, and the perceived self efficacy. Protection motivation stems from both the threat appraisal and the coping appraisal. The threat appraisal assesses the severity of the situation and examines how serious the situation is. The coping appraisal is how one responds to the situation. The coping appraisal consists of both efficacy and self-efficacy. Efficacy is the individual's expectancy that carrying out recommendations can remove the threat. Self-efficacy is the belief in one's ability to execute the recommended courses of action successfully. PMT is one model that explains why people engage in unhealthy practices and offers suggestions for changing those behaviors. It is educational and motivational. Primary prevention: taking measures to combat the risk of developing a health problem. (e.g., controlling weight to prevent high blood pressure). Secondary prevention: taking steps to prevent a condition from becoming worse.[4] (e.g., remembering to take daily medication to control blood pressure).

Meaning

Protection motivation theory. The protection motivation theory proposes that people protect themselves based on four factors: the perceived severity of a

threatening event, the perceived probability of the occurrence, or vulnerability, the efficacy of the recommended preventive behavior, and the perceived self efficacy ...

Theory

Threat-appraisal process

The threat appraisal process consists of both the severity and vulnerability of situation. It focuses on the source of the threat and factors that increase or decrease likelihood of maladaptive behaviours.[6] Severity refers to the degree of harm from the unhealthy behavior. Vulnerability is the probability that one will experience harm. Another aspect of the threat appraisal is rewards. Rewards refer to the positive aspects of starting or continuing the unhealthy behavior. To calculate the amount of threat experienced take the combination of both the severity and vulnerability, and then subtract the rewards. Threat appraisal refers to children's evaluation of the degree to which an event has significant implications for their well-being. Theoretically, threat appraisal is related to Lazaraus' concept of primary appraisal, particularly to the way in which the event threatens the child's commitments, goals, or values. Threat appraisal is differentiated from the evaluation of stressfulness or impact of the event in that is assesses what is threatened, rather than simply the degree of stress or negativity of an event. Threat appraisal is also differentiated from negative cognitive styles, because it assesses children's reported negative appraisals for specific events in their lives rather than their typical style of responding to stressful events. Theoretically, higher threat appraisals should lead to negative arousal and coping and to increased psychological symptomatology.

Coping-appraisal process

The coping appraisal consists of the response efficacy, self-efficacy, and the response costs. Response efficacy is the effectiveness of the recommended behavior in removing or preventing possible harm. Self-efficacy is the belief that one can successfully enact the recommended behavior. The response costs are the costs associated with the recommended behavior. The amount of coping ability that one experiences is the combination of response efficacy and self-efficacy, minus the response costs. The coping appraisal process focuses on the adaptive responses and one's ability to cope with and avert the threat. The coping appraisal is the sum of the appraisals of the responses efficacy and self-efficacy, minus any physical or psychological "costs" of adopting the recommended preventive response. Coping Appraisal involves the individual's assessment of the response efficacy of the recommended behavior (i.e. perceived effectiveness of sunscreen in preventing premature aging) as well as one's perceived self-efficacy in carrying out the recommended actions.[7] (i.e. confidence that one can use sunscreen consistently).

The Threat and coping appraisal variables combine in a fairly straightforward way, although the relative emphasis may vary from topic to topic and with target population.

In *Stress, Appraisal, and Coping*, Richard Lazarus states that, "studies of coping suggest that different styles of coping are related to specific health outcomes; control of anger, for example, has been implicated in hypertension. Three routes through which coping can affect health include the frequency, intensity, duration, and patterning of neurochemical stress reactions; using injurious substances or carrying out activities that put the person at risk; and impeding adaptive health/illness-related behavior.".

Response efficacy

Response efficacy concerns beliefs that adopting a particular behavioral response will be effective in reducing the diseases' threat, and self-efficacy is the belief that one can successfully perform the coping response. In line with the traditional way of measuring the consequences of behavior, response efficacy was operationalized by linking consequences to the recommended behavior as well as to whether the subject regarded the consequences as likely outcomes of the recommended behavior. Among the 6 factors (vulnerability, severity, rewards, response efficacy, self-efficacy, and response costs), self-efficacy is the most correlated with protection motivation, according to meta-analysis studies.

9.9 TRANS-THEORETICAL MODEL OF BEHAVIOR CHANGE

The transtheoretical model of behavior change is an integrative theory of therapy that assesses an individual's readiness to act on a new healthier behavior, and provides strategies, or processes of change to guide the individualThe model is composed of constructs such as: stages of change, processes of change, levels of change, self-efficacy, and decisional balance.

The transtheoretical model is also known by the abbreviation "TTM"and sometimes by the term "stages of change", although this latter term is a synecdoche since the stages of change are only one part of the model along with processes of change, levels of change, etc. It has been called "arguably the dominant model of health behaviour change, having received unprecedented research attention, yet it has simultaneously attracted criticism".

Meaning

The Transtheoretical Model (Stages of Change) ... The TTM posits that individuals move through six stages of change: precontemplation, contemplation, preparation, action, maintenance, and termination.

Stages of change

This construct refers to the temporal dimension of behavioural change. In the transtheoretical model, change is a "process involving progress through a series of stages":

- Precontemplation ("not ready") – "People are not intending to take action in the foreseeable future, and can be unaware that their behaviour is problematic"

- Contemplation ("getting ready") – "People are beginning to recognize that their behaviour is problematic, and start to look at the pros and cons of their continued actions"
- Preparation ("ready") – "People are intending to take action in the immediate future, and may begin taking small steps toward behaviour change"
- Action – "People have made specific overt modifications in modifying their problem behaviour or in acquiring new healthy behaviours"
- Maintenance – "People have been able to sustain action for at least six months and are working to prevent relapse"
- Termination – "Individuals have zero temptation and they are sure they will not return to their old unhealthy habit as a way of coping"

In addition, the researchers conceptualized "Relapse" (recycling) which is not a stage in itself but rather the "return from Action or Maintenance to an earlier stage".

The quantitative definition of the stages of change (see below) is perhaps the most well-known feature of the model. However it is also one of the most critiqued, even in the field of smoking cessation, where it was originally formulated. It has been said that such quantitative definition (i.e. a person is in preparation if he intends to change within a month) does not reflect the nature of behaviour change, that it does not have better predictive power than simpler questions (i.e. "do you have plans to change..."), and that it has problems regarding its classification reliability.

Communication theorist and sociologist Everett Rogers suggested that the stages of change are analogues of the stages of the innovation adoption process in Rogers' theory ofdiffusion of innovations.

Details of each stage

Stages of change

Stage	*Precontemplation*	*Contemplation*	*Preparation*	*Action*	*Maintenance*	*Relapse*
Standard time	more than 6 months	in the next 6 months	in the next month	now	at least 6 months	any time

Stage 1: Precontemplation (not ready)

People at this stage do not intend to start the healthy behavior in the near future (within 6 months), and may be unaware of the need to change. People here learn more about healthy behavior: they are encouraged to think about the pros of changing their behavior and to feel emotions about the effects of their negative behavior on others.

Precontemplators typically underestimate the pros of changing, overestimate the cons, and often are not aware of making such mistakes.

One of the most effective steps that others can help with at this stage is to encourage them to become more mindful of their decision making and more conscious of the multiple benefits of changing an unhealthy behavior.

Stage 2: Contemplation (getting ready)

At this stage, participants are intending to start the healthy behavior within the next 6 months. While they are usually now more aware of the pros of changing, their cons are about equal to their Pros. This ambivalence about changing can cause them to keep putting off taking action.

People here learn about the kind of person they could be if they changed their behavior and learn more from people who behave in healthy ways.

Others can influence and help effectively at this stage by encouraging them to work at reducing the cons of changing their behavior.

Stage 3: Preparation (ready)

People at this stage are ready to start taking action within the next 30 days. They take small steps that they believe can help them make the healthy behavior a part of their lives. For example, they tell their friends and family that they want to change their behavior.

People in this stage should be encouraged to seek support from friends they trust, tell people about their plan to change the way they act, and think about how they would feel if they behaved in a healthier way. Their number one concern is: when they act, will they fail? They learn that the better prepared they are, the more likely they are to keep progressing.

Stage 4: Action (current action)

People at this stage have changed their behavior within the last 6 months and need to work hard to keep moving ahead. These participants need to learn how to strengthen their commitments to change and to fight urges to slip back.

People in this stage progress by being taught techniques for keeping up their commitments such as substituting activities related to the unhealthy behavior with positive ones, rewarding themselves for taking steps toward changing, and avoiding people and situations that tempt them to behave in unhealthy ways.

Stage 5: Maintenance (monitoring)

People at this stage changed their behavior more than 6 months ago. It is important for people in this stage to be aware of situations that may tempt them to slip back into doing the unhealthy behavior—particularly stressful situations.

It is recommended that people in this stage seek support from and talk with people whom they trust, spend time with people who behave in healthy ways, and remember to engage in healthy activities (such as exercise and deep relaxation) to cope with stress instead of relying on unhealthy behavior.

Processes of change

The 10 processes of change are "covert and overt activities that people use to progress through the stages".

To progress through the early stages, people apply cognitive, affective, and evaluative processes. As people move toward Action and Maintenance, they rely more on commitments, counter conditioning, rewards, environmental controls, and support.

Prochaska and colleagues state that their research related to the transtheoretical model shows that interventions to change behavior are more effective if they are "stage-matched", that is, "matched to each individual's stage of change".

In general, for people to progress they need:

- A growing awareness that the advantages (the "pros") of changing outweigh the disadvantages (the "cons")—the TTM calls this decisional balance.
- Confidence that they can make and maintain changes in situations that tempt them to return to their old, unhealthy behavior—the TTM calls this *self-efficacy*.
- Strategies that can help them make and maintain change—the TTM calls these processes of change.

The ten processes of change include:

1. Consciousness-raising (Get the facts) — increasing awareness via information, education, and personal feedback about the healthy behavior.
2. Dramatic relief (Pay attention to feelings) — feeling fear, anxiety, or worry because of the unhealthy behavior, or feeling inspiration and hope when hearing about how people are able to change to healthy behaviors.
3. Self-reevaluation (Create a new self-image) — realizing that the healthy behavior is an important part of who they want to be.
4. Environmental reevaluation (Notice your effect on others) — realizing how their unhealthy behavior affects others and how they could have more positive effects by changing.
5. Social liberation (Notice public support) — realizing that society is supportive of the healthy behavior.
6. Self-liberation (Make a commitment) — believing in one's ability to change and making commitments and re-commitments to act on that belief.
7. Helping relationships (Get support) — finding people who are supportive of their change.
8. Counterconditioning (Use substitutes) — substituting healthy ways of acting and thinking for unhealthy ways.

9. Reinforcement management (Use rewards) — increasing the rewards that come from positive behavior and reducing those that come from negative behavior.
10. Stimulus control (Manage your environment) — using reminders and cues that encourage healthy behavior and avoiding places that don't.

Levels of change

This core construct identifies the depth or complexity of presenting problems according to five levels of increasing complexity. Different therapeutic approaches are recommended for each level as well as for each stage of change. The levels are:

1. Symptom/situational problems: e.g., motivational interviewing, behavior therapy, exposure therapy
2. Current maladaptive cognitions: e.g., Adlerian therapy, cognitive therapy, rational emotive therapy
3. Current interpersonal conflicts: e.g., Sullivanian therapy, interpersonal therapy
4. Family/systems conflicts: e.g., strategic therapy, Bowenian therapy, structural family therapy
5. Long-term intrapersonal conflicts: e.g., psychoanalytic therapies, existential therapy, Gestalt therapy

Example for TTM application on smoke control

In the treatment of smoke control, TTM focuses on each stage to monitor and to achieve a progression to the next stage.

Stage	Precontemplation	Contemplation	Preparation	Action	Maintenance	Can Relapse to an earlier stage
Standard time	more than 6 months	in the next 6 months	in the next month	now	at least 6 months	any time
Action and intervention	not ready to quit or demoralized	ambivalent	intend to quit	take action and quit	sustained	back to smoke
Related	Book, newspaper,	Book, newspaper,	doctor, nurse,	doctor,	friend,	temptation,

source	friend	friend	friend...	nurse, friend...	family	stress, distress

In each stage, a patient may have multiple sources that could influence their behavior. These may include: friends, books, and interactions with their healthcare providers. These factors could potentially influence how successful a patient may be in moving through the different stages. This stresses the importance to have continuous monitoring and efforts to maintain progress at each stage. TTM helps guide the treatment process at each stage, and may assist the healthcare provider in making an optimal therapeutic decision.

9.10 SELF-REGULATION MODEL

Self-regulation theory (SRT) is a system of conscious personal management that involves the process of guiding one's own thoughts, behaviors, and feelings to reach goals. Self-regulation consists of several stages, and individuals must function as contributors to their own motivation, behavior, and development within a network of reciprocally interacting influences.

Meaning

The self-regulation model (SRM) of illness developed by Leventhal and colleagues proposes that individuals are active problem solvers and suggests that central cognitive constructs called illness beliefs guide coping in response to a health threat.

Roy Baumeister, one of the leading social psychologists who have studied self-regulation, claims it has four components: standards of desirable behavior, motivation to meet standards, monitoring of situations and thoughts that precede breaking said standards, and lastly, willpower. Baumeister along with other colleagues developed three models of self-regulation designed to explain its cognitive accessibility: self-regulation as a knowledge structure, strength, or skill. Studies have been done to determine that the strength model is generally supported, because it is a limited resource in the brain and only a given amount of self-regulation can occur until that resource is depleted.

SRT can be applied to:

- impulse control, the management of short-term desires. People with low impulse control are prone to acting on immediate desires. This is one route for such people to find their way to jail as many criminal acts occur in the heat of the moment. For non-violent people it can lead to losing friends through careless outbursts, or financial problems caused by making too many impulsive purchases.
- the cognitive bias known as illusion of control. To the extent that people are driven by internal goals concerned with the exercise of control over their environment, they will seek to reassert control in conditions of chaos,

uncertainty or stress. Failing genuine control, one coping strategy will be to fall back on defensive attributions of control—leading to illusions of control
- goal attainment and motivation
- sickness behavior

SRT consists of several stages. First, the patient deliberately monitors one's own behavior, and evaluates how this behavior affects one's health. If the desired effect is not realized, the patient changes personal behavior. If the desired effect is realized, the patient reinforces the effect by continuing the behavior.

Another approach is for the patient to realize a personal health issue and understand the factors involved in that issue. The patient must decide upon an action plan for resolving the health issue. The patient will need to deliberately monitor the results in order to appraise the effects, checking for any necessary changes in the action plan.

Another factor that can help the patient reach his/her own goal of personal health is to relate to the patient the following: Help them figure out the personal/community views of the illness, appraise the risks involved, and give them potential problem-solving/coping skills. Four components of self-regulation described by Baumeister et al. (2007) are:

- **Standards**: Of desirable behavior.
- **Motivation**: To meet standards.
- **Monitoring**: Of situations and thoughts that precede breaking standards.
- **Willpower**: Internal strength to control urges

Self-regulation can be applied to many aspects of everyday life, including social situations, personal health management, impulse control, and more. Since the strength model is generally supported, ego depletion tasks can be performed to temporarily tax the amount of self-regulatory capabilities in a person's brain. It is theorized that self-regulation depletion is associated with willingness to help people in need, excluding members of an individual's kin.

9.11TERMINOLOGIES

1.Modeling 2. Self-Efficacy 3. Planning 4. Influence 5. Health Belief

9.12 MODEL QUESTIONS

1. Explain the Model of theoretical foundations?
2. Discuss the Social influences?
3. Bring out the Health belief model?
4. Discuss the Production motivation theory?
5. Discuss the Self-Regulation Model?

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UNIT-X HEALTH PROMOTION AND ILLNESS PREVENTION

Structure

10.1 INTRODUCTION

Health promotion is defined by the World Health Organization as the process of enabling people to increase control over their health and its determinants, and thereby improve their health.

Two important organizations in the U.S. that accomplish this task are the Centers for Disease Control and Prevention (CDC) and National Institutes of Health (NIH). These agencies serve as centers of information for people who have questions about a certain disease or health-related goals, such as exercise or nutrition. They also conduct research into the latest preventative strategies with respect to maintaining a healthy lifestyle and preventing disease, be it infectious or otherwise (like cancer).

In fact, these agencies provide you with health behavior-related information. Health behavior refers to a person's beliefs and actions regarding their health and well-being.

As a good example of this, some people's health behaviors jive well with promoting and maintaining a healthy lifestyle. People on their best health behavior:

- Do not smoke or use any other tobacco products.
- Do not drink in excess. This means no more than two drinks per day for a man under age 65 and one drink per day for a woman of any age or a man over age 65.
- They also exercise regularly. As a case in point, you can perform two and a half hours of brisk walking every week to help improve your physical fitness.
- And furthermore, such people eat well. This doesn't solely imply you should just eat more fruits and vegetables, which is true. It also means you should simultaneously cut back on salty food, greasy meals, and too many things with simple sugar, like cola or sweets.

Meaning

Health behavior refers to a person's beliefs and actions regarding their health and well-being. As a good example of this, some people's health behaviorsjive well with promoting and maintaining a healthy lifestyle. People on their best health behavior: Do not smoke or use any other tobacco products.

10.2 TEN MORE STEPS TO CHANGE UNHEALTHY HABITS

1. **Identify the habits you want to change.** This means bringing what is usually unconscious (or at least ignored) to your awareness. It *does not*mean beating yourself up about it. Make a list of things you'd like to change, and then pick one.

2. **Look at what you are getting out of it.** In other words, how is your habit serving you? Are you looking for comfort in food? Numbness in wine? An outlet or connection online? Stress alleviation through eating or nail biting? This doesn't have to be a long, complex process. You'll figure it out—and you'll have some good ideas about how to switch it up for healthier outcomes.

3. **Honor your own** wisdom. Here's a common scenario: You feel like you have no down-time, so you stay up way too late binge-watching your favorite show on Netflix. You know you'll be exhausted and less productive the next day, but you feel "entitled" to something fun, just for you. Your wisdom, however, knows this is not a healthy way to get it. Use that wisdom to build something into your schedule that will provide what you really want. Realize you do have the answers and are capable of doing something different.

4. **Choose something to replace the unhealthy habit.** Just willing yourself to change isn't enough because it does not address the underlying benefit of the behavior you want to replace. What can you do instead of

standing in front of the fridge when you're stressed? If you have a plan, you will be "armed" with tools and a replacement behavior. Next time you catch yourself not hungry but standing in front of the refrigerator anyway, try a replacement behavior. Some ideas: Breathe in to the count of 4 and breathe out to the count of 8, focusing only on your breathing. Do that 4 times and see how you feel. If you need more support, stand there until you come up with one reason why you *shouldn't* continue with this habit. This is a key step. When you do something different to replace an unhealthy habit, acknowledge to yourself that you are doing it differently. You need to bring whatever it is that is subconscious to the conscious mind so that you can emphasize your ability to change. It can be as simple as saying to yourself, "Look at that. I made a better choice."

5. **Remove triggers.** If Doritos are a trigger, throw them out on a day you feel strong enough to do so. If you crave a cigarette when you drink socially, avoid social triggers—restaurants, bars, nights out with friends. This doesn't have to be forever—just for a while, until you feel secure in your new habit. Sometimes certain people are our triggers. Remember that you end up being like the five people you hang out with most. Look at who those people are: Do they inspire you or do they drag you down?

6. **Visualize yourself changing.** Serious visualization retrains your brain. In this case, you want to think differently about your ability to change—so spend some time every day envisioning yourself with new habits. Picture yourself exercising and enjoying it, eating healthy foods, or fitting into those jeans. See yourself engaged in happy conversation with someone instead of standing in the back of the room. This kind of visualization really works. The now familiar idea that "nerves that fire together wire together" is based on the idea that the more you think about something—and do it—the more it becomes wired in your brain. Your default choice can actually be a healthier one for you.

7. **Monitor your negative self-talk.** The refrain in your brain can seriously affect your default behaviors. So when you catch yourself saying, "I'm fat" or "No one likes me," reframe it or redirect it. Reframing is like rewriting the script. Replace it with, "I'm getting healthy, or "Myconfidence is growing." Redirecting is when you add to your negative self-talk of "I'm fat" with "But I'm working my way into a healthier lifestyle." Judging yourself only keeps you stuck. Retrain the judgmental brain.

8. **Take baby steps, if necessary.** Even if you can't fully follow through with a new habit right away, do something small to keep yourself on track. For example, if you've blocked out an hour to exercise and you suddenly have to go to a doctor's appointment, find another time to squeeze in at least 15 minutes. That way, you'll reinforce your new habit, even if you can't commit 100 percent.

9. **Accept that you will sometimes falter.** We all do. Habits don't change overnight. Love yourself each time you do and remind yourself that you are human.

10. **Know that it will take time**. Habits usually take several weeks to change. You have to reinforce that bundle of nerves in your brain to change your default settings.

Bring the process to your awareness by writing it down. It is very easy to forget a new plan that is conceived with best intentions, but never reinforced. For maximum success, take 15 minutes to plan out your new habit, pen in hand.

10.3 CHANGING YOUR HABITS FOR BETTER HEALTH

- What stage of change are you in?
- Contemplation: Are you thinking of making changes?
- Preparation: Have you made up your mind?
- Action: Have you started to make changes?
- Maintenance: Have you created a new routine?
- Clinical Trials

Are you thinking about being more active? Have you been trying to cut back on less healthy foods? Are you starting to eat better and move more but having a hard time sticking with these changes?

Old habits die hard. Changing your habits is a process that involves several stages. Sometimes it takes a while before changes become new habits. And, you may face roadblocks along the way.

Adopting new, healthier habits may protect you from serious health problems like obesity anddiabetes. New habits, like healthy eating and regular physical activity, may also help you manage your weight and have more energy. After a while, if you stick with these changes, they may become part of your daily routine.

New habits may help you look better and have more energy.

The information below outlines four stages you may go through when changing your health habits or behavior. You will also find tips to help you improve your eating, physical activity habits, and overall health. The four stages of changing a health behavior are

- contemplation
- preparation
- action
- maintenance

10.4 WHAT STAGE OF CHANGE ARE YOU IN?

Contemplation: "I'm thinking about it."

In this first stage, you are thinking about change and becoming motivated to get started.

You might be in this stage if you

- have been considering change but are not quite ready to start
- believe that your health, energy level, or overall well-being will improve if you develop new habits
- are not sure how you will overcome the roadblocks that may keep you from starting to change

Preparation: "I have made up my mind to take action."

In this next stage, you are making plans and thinking of specific ideas that will work for you.

You might be in this stage if you

- have decided that you are going to change and are ready to take action
- have set some specific goals that you would like to meet
- are getting ready to put your plan into action

Action: "I have started to make changes."

In this third stage, you are acting on your plan and making the changes you set out to achieve.

You might be in this stage if you

- have been making eating, physical activity, and other behavior changes in the last 6 months or so
- are adjusting to how it feels to eat healthier, be more active, and make other changes such as getting more sleep or reducing screen time
- have been trying to overcome things that sometimes block your success

Maintenance: "I have a new routine."

In this final stage, you have become used to your changes and have kept them up for more than 6 months.

You might be in this stage if

- your changes have become a normal part of your routine
- you have found creative ways to stick with your routine
- you have had slip-ups and setbacks but have been able to get past them and make progress

Did you find your stage of change? Read on for ideas about what you can do next.

Contemplation: Are you thinking of making changes?

Making the leap from thinking about change to taking action can be hard and may take time. Asking yourself about the pros (benefits) and cons (things that get in the way) of changing your habits may be helpful. How would life be better if you made some changes?

Think about how the benefits of healthy eating or regular physical activity might relate to your overall health. For example, suppose your blood glucose, also called blood sugar, is a bit high and you have a parent, brother, or sister who has type 2 diabetes. This means you also may develop type 2 diabetes. You may find that it is easier to be physically active and eat healthy knowing that it may help control blood glucose and protect you from a serious disease.

10.5 HEALTHY EATING

Pros	Cons
• have more energy • improve my health • lower my risk for health problems • maintain a healthy weight • feel proud of myself • set an example for friends and family • ______________________ • ______________________	• may spend more money and time on food • may need to cook more often at home • may need to eat less of foods I love • may need to buy different foods • may need to convince my family that we all have to eat healthier foods • ______________________ • ______________________

Physical Activity

Pros	Cons
• improve my health • reduce my risk for serious health problems • feel better about myself • become stronger • have fun • take time to care for myself • meet new people and spend time with them • have more energy • maintain a healthy weight • become a role model for others •	• takes too much time and energy • it is too hot or cold outside • feel self-conscious • am nervous about my health • could hurt myself • am not good at being active • do not know what to do • have no one to be active with • am not young or fit enough • keeps me from family and friends • ________________________ • ________________________

10.6 PREPARATION: HAVE YOU MADE UP YOUR MIND?

If you are in the preparation stage, you are about to take action. To get started, look at your list of pros and cons. How can you make a plan and act on it?

The chart below lists common roadblocks you may face and possible solutions to overcome roadblocks as you begin to change your habits. Think about these things as you make your plan.

Roadblock	Solution
I don't have time.	Make your new healthy habit a priority. Fit in physical activity whenever and wherever you can. Try taking the stairs or getting off the bus a stop early if it is safe to do so. Set aside one grocery shopping day a week, and make healthy meals that you can freeze and eat later when you don't have time to cook.
Healthy habits cost too much.	You can walk around the mall, a school track, or a local park for free. Eat healthy on a budget by buying in bulk and when items are on sale, and by choosing frozen or canned fruits and vegetables.
I can't make this change	Recruit others to be active with you, which will help you stay motivated and safe. Consider signing up for a fun fitness class like salsa dancing. Get your family or coworkers on the healthy

Roadblock	Solution
alone.	eating bandwagon. Plan healthy meals together with your family, or start a healthy potluck once a week at work.
I don't like physical activity.	Forget the old notion that being physically active means lifting weights in a gym. You can be active in many ways, including dancing, walking, or gardening. Make your own list of options that appeal to you. Explore options you never thought about, and stick with what you enjoy.
I don't like healthy foods.	Try making your old favorite recipes in healthier new ways. For example, you can trim fat from meats and reduce the amount of butter, sugar, and salt you cook with. Use low-fat cheeses or milk rather than whole-milk foods. Add a cup or two of broccoli, carrots, or spinach to casseroles or pasta.

Once you have made up your mind to change your habits, make a plan and set goals for taking action. Here are some ideas for making your plan:

- learn more about healthy eating External link and food portions
- learn more about being physically active
- make lists of
  - healthy foods that you like or may need to eat more of—or more often
  - foods you love that you may need to eat less often
  - things you could do to be more physically active
  - fun activities you like and could do more often, such as dancing

After making your plan, start setting goals for putting your plan into action. Start with small changes. For example, "I'm going to walk for 10 minutes, three times a week." What is the one step you can take right away?

Action: Have you started to make changes?

You are making real changes to your lifestyle, which is fantastic! To stick with your new habits

- review your plan
- look at the goals you set and how well you are meeting them
- overcome roadblocks by planning ahead for setbacks
- reward yourself for your hard work..

Track your progress

- Tracking your progress helps you spot your strengths, find areas where you can improve, and stay on course. Record not only what you did, but how you felt while doing it—your feelings can play a role in making your new habits stick.
- Recording your progress may help you stay focused and catch setbacks in meeting your goals. Remember that a setback does not mean you have failed. All of us experience setbacks. The key is to get back on track as soon as you can.
- You can track your progress with online tools such as the NIH Body Weight Planner. The NIH Body Weight Planner lets you tailor your calorie and physical activity plans to reach your personal goals within a specific time period.

10.7 OVERCOME ROADBLOCKS

- Remind yourself why you want to be healthier. Perhaps you want the energy to play with your nieces and nephews or to be able to carry your own grocery bags. Recall your reasons for making changes when slip-ups occur. Decide to take the first step to get back on track.
- Problem-solve to "outsmart" roadblocks. For example, plan to walk indoors, such as at a mall, on days when bad weather keeps you from walking outside.
- Ask a friend or family member for help when you need it, and always try to plan ahead. For example, if you know that you will not have time to be physically active after work, go walking with a coworker at lunch or start your day with an exercise video.

Reward yourself

- After reaching a goal or milestone, allow for a nonfood reward such as new workout gear or a new workout device. Also consider posting a message on social media to share your success with friends and family.
- Choose rewards carefully. Although you should be proud of your progress, keep in mind that a high-calorie treat or a day off from your activity routine are not the best rewards to keep you healthy.
- Pat yourself on the back. When negative thoughts creep in, remind yourself how much good you are doing for your health by moving more and eating healthier.

Maintenance: Have you created a new routine?

Make your future a healthy one. Remember that eating healthy, getting regular physical activity, and other healthy habits are lifelong behaviors, not one-time events. Always keep an eye on your efforts and seek ways to deal with the planned and unplanned changes in life.

Eating healthy and being physically active are lifelong behaviors, not one-time events.

Now that healthy eating and regular physical activity are part of your routine, keep things interesting, avoid slip-ups, and find ways to cope with what life throws at you.

Add variety and stay motivated

- Mix up your routine with new physical activities and goals, physical activity buddies, foods, recipes, and rewards.

Deal with unexpected setbacks

- Plan ahead to avoid setbacks. For example, find other ways to be active in case of bad weather, injury, or other issues that arise. Think of ways to eat healthy when traveling or dining out, like packing healthy snacks while on the road or sharing an entrée with a friend in a restaurant.
- If you do have a setback, don't give up. Setbacks happen to everyone. Regroup and focus on meeting your goals again as soon as you can.

10.8 CHALLENGE YOURSELF!

- Revisit your goals and think of ways to expand them. For example, if you are comfortable walking 5 days a week, consider adding strength training twice a week. If you have limited your saturated fat intake by eating less fried foods, try cutting back on added sugars, too. Small changes can lead to healthy habits worth keeping.

Clinical Trials

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) and other components of the National Institutes of Health (NIH) conduct and support research into many diseases and conditions .

What are clinical trials, and are they right for you?

Clinical trials are part of clinical research and at the heart of all medical advances. Clinical trials look at new ways to prevent, detect, or treat disease. Researchers also use clinical trials to look at other aspects of care, such as improving the quality of life for people with chronic illnesses. Find out if clinical trials are right for you. *NIH external link*

Making the leap from thinking about change to taking action can be hard and may take a while.

You may learn more about the benefits of changing your eating and physical activity habits from a health care professional. This knowledge may help you take action.

Look at the lists of pros and cons below. Find the items you believe are true for you. Think about factors that are important to you.

10.9 COGNITIVE BEHAVIORAL APPROACHES TO HEALTH BEHAVIOR CHANGE

Cognitive behavioral therapy (CBT) is a psycho-social intervention that aims to improve mental health. CBT focuses on challenging and changing unhelpful cognitive distortions (e.g. thoughts, beliefs, and attitudes) and behaviors, improving emotional regulation, and the development of personal coping strategies that target solving current problems. Originally, it was designed to treat depression, but its uses have been expanded to include treatment of a number of mental health conditions, includinganxiety. CBT includes a number of cognitive or behaviour psychotherapies that treat defined psychopathologies using evidence-based techniques and strategies.

CBT is based on the combination of the basic principles from behavioral and cognitive psychology. It is different from historical approaches to psychotherapy, such as the psychoanalytic approach where the therapist looks for the unconscious meaning behind the behaviors and then formulates a diagnosis. Instead, CBT is a "problem-focused" and "action-oriented" form of therapy, meaning it is used to treat specific problems related to a diagnosed mental disorder. The therapist's role is to assist the client in finding and practicing effective strategies to address the identified goals and decrease symptoms of the disorder. CBT is based on the belief that thought distortions and maladaptive behaviors play a role in the development and maintenance of psychological disorders, and that symptoms and associated distress can be reduced by teaching new information-processing skills and coping mechanisms.

When compared to psychoactive medications, review studies have found CBT alone to be as effective for treating less severe forms of depression and anxiety, posttraumatic stress disorder (PTSD), tics, substance

abuse, eating disorders andborderline personality disorder. Some research suggests that CBT is most effective when combined with medication for treating mental disorders such as Major Depressive Disorder. In addition, CBT is recommended as the first line of treatment for the majority of psychological disorders in children and adolescents, including aggression and conduct disorder. Researchers have found that other *bona fide* therapeutic interventions were equally effective for treating certain conditions in adults. Along withinterpersonal psychotherapy (IPT), CBT is recommended in treatment guidelines as a psychosocial treatment of choice, and CBT and IPT are the only psychosocial interventions that psychiatry residents in the United States are mandated to be trained in.

Phases in therapy

CBT can be seen as having six phases:

1. Assessment or psychological assessment;
2. Reconceptualization;
3. Skills acquisition;
4. Skills consolidation and application training;
5. Generalization and maintenance;
6. Post-treatment assessment follow-up.

These steps are based on a system created by Kanfer and Saslow. After identifying the behaviors that need changing, whether they be in excess or deficit, and treatment has occurred, the psychologist must identify whether or not the intervention succeeded. For example, "If the goal was to decrease the behavior, then there should be a decrease relative to the baseline. If the critical behavior remains at or above the baseline, then the intervention has failed."

The steps in the assessment phase include:

Step 1: Identify critical behaviors

Step 2: Determine whether critical behaviors are excesses or deficits

Step 3: Evaluate critical behaviors for frequency, duration, or intensity (obtain a baseline)

Step 4: If excess, attempt to decrease frequency, duration, or intensity of behaviors; if deficits, attempt to increase behaviors.

The re-conceptualization phase makes up much of the "cognitive" portion of CBT. A summary of modern CBT approaches is given by Hofmann.

Behavior and cognitive therapies merge – "third wave" CBT

Although the early behavioral approaches were successful in many of the neurotic disorders, they had little success in treating depression. Behaviorism was also losing in popularity due to the so-called "cognitive revolution". The therapeutic approaches of Albert Ellis and Aaron T. Beck gained popularity among behavior therapists, despite the earlier behaviorist rejection of "mentalistic" concepts like thoughts and cognitions. Both of these systems

included behavioral elements and interventions and primarily concentrated on problems in the present.

In initial studies, cognitive therapy was often contrasted with behavioral treatments to see which was most effective. During the 1980s and 1990s, cognitive and behavioral techniques were merged into cognitive behavioral therapy. Pivotal to this merging was the successful development of treatments for panic disorder by David M. Clark in the UK andDavid H. Barlow in the US.

Over time, cognitive behavior therapy became to be known not only as a therapy, but as an umbrella term for all cognitive-based psychotherapies. These therapies include, but are not limited to, rational emotive therapy (REBT), cognitive therapy, acceptance and commitment therapy, dialectical behavior therapy, reality therapy/choice theory,cognitive processing therapy, EMDR, and multimodal therapy. All of these therapies are a blending of cognitive- and behavior-based elements.

This blending of theoretical and technical foundations from both behavior and cognitive therapies constituted the "third wave" of CBT. The most prominent therapies of this third wave are dialectical behavior therapy and acceptance and commitment therapy.

Despite increasing popularity of "third-wave" treatment approaches, reviews of studies reveal there may be no difference in the effectiveness compared with "non-third wave" CBT for the treatment of depression.

10.10 TYPES

BCBT

Brief cognitive behavioral therapy (BCBT) is a form of CBT which has been developed for situations in which there are time constraints on the therapy sessions. BCBT takes place over a couple of sessions that can last up to 12 accumulated hours by design. This technique was first implemented and developed on soldiers overseas in active duty by David M. Rudd to prevent suicide.

Breakdown of treatment

1. Orientation
    1. Commitment to treatment
    2. Crisis response and safety planning
    3. Means restriction
    4. Survival kit
    5. Reasons for living card
    6. Model of suicidality
    7. Treatment journal
    8. Lessons learned

2. Skill focus
    1. Skill development worksheets
    2. Coping cards
    3. Demonstration
    4. Practice
    5. Skill refinement
3. Relapse prevention
    1. Skill generalization
    2. Skill refinement

Unified Protocol

The Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (UP) is a form of CBT, developed by David H. Barlow and researchers at Boston University, that can be applied to a range of depression and anxiety disorders. The rationale is that anxiety and depression disorders often occur together due to common underlying causes and can efficiently be treated together.

The UP includes a common set of components:

1. Psycho-education
2. Cognitive reappraisal
3. Emotion regulation
4. Changing behaviour

The UP has been shown to produce equivalent results to single-diagnosis protocols for specific disorders, such as OCD and social anxiety disorder. Several studies have shown that the UP is easier to disseminate as compared to single-diagnosis protocols.

10.11TERMINOLOGIES

1.Change 2. Habits 3. Health Eating 4. Challenge 5. Cognitive

10.12 MODEL QUESTIONS

1. Explain the Stage of change are you in?

2. Discuss the Overcome Road Blocks?

3. Bring out the Challenge your self?

4. Discuss the changing your habit for better health?

5. Discuss the Health eating?

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UNIT-XI HEALTH CARE SYSTEM

Structure

11.1 INTRODUCTION

The healthcare ecosystem in India is at an inflection point. While the outlook for the healthcare industry is optimistic, there is a need to move towards an integrated healthcare delivery system, which leverages technology and has the patient at its center Say **Nilaya Varma,** Partner, Health & Public Services, Accenture India.

The growth of a nation is not just about tallying its industrial, agricultural and services balance sheets. It is equally about tallying its performance on the human development indices. The state of its healthcare is one of the critical measures of how a nation state is performing. For a country the size of India, that is even more important.

Meaning

The Indian healthcare industry is all set to grow to over USD 280 billion by 2020, which is a growth of over ten times from 2005. This growth has been driven by several factors, including demographics, increase in awareness levels and availability of medical care in India.

11.2 FACTORS IN INDIAN HEALTH CARE

The Indian healthcare industry is all set to grow to over USD 280 billion by 2020, which is a growth of over ten times from 2005. This growth has been driven by several factors, including demographics, increase in awareness levels and availability of medical care in India.

Changing with the times

Conducive demographics: While the population growth rate for India has steadily gone down, it is still at over 1.3 percent and is not expected to go below one percent in the near future. Also, it is interesting to note that our population aged above 60 years is projected to grow to around 193 million, compared with over 96 million in 2010. This change in the population pyramid is expected to fuel the demand for healthcare in general, particularly lifestyle diseases.

Rising affordability: In the past decade, India has witnessed a rapid increase in levels of wealth and disposable incomes. Coupled with a better standard of living and health awareness, this has led to an increase in spending on healthcare and wellness.

Increase in lifestyle diseases: Lifestyle-related diseases comprised 13 percent of total ailments in India, according to a 2008 data, and this number is expected to increase to 20 percent by 2018. This is expected to trigger an additional demand for specialised treatment, which in turn, will lead to increased margins for hospitals since these diseases lie at the high margin end of the spectrum.

Health insurance and medical tourism: While out-of-pocket spending remains the mainstay of healthcare expenditure, health insurance is gaining momentum in India.The increasing penetration of health insurance is expected to significantly increase the affordability of healthcare services, driving up the demand for preventive healthcare and curative services. Medical tourism is also driving the healthcare market in India.

The fact that the treatment for major surgeries in India costs approximately 20 percent of that in developed countries; coupled with the high quality of care in Indian tertiary and specialty hospitals makes medical tourism attractive for patients from developed as well as emerging economies.

Challenges to growth

Despite such strong factors working in the industrys favour, there are several systemic challenges that also need to be addressed.

Dual disease burden: Even asthe incidence of lifestyle diseases is steadily on the rise, a vast majority of rural and poor patients still suffer from infectious and acute diseases.

Low penetration of insurance and other payer mechanisms: The overall quantum of health insurance may have increased, but it is largely limited to urban areas. In other areas, especially rural, people continue to spend from their own pockets.

Inequity in infrastructure: While the urban India is witnessing a mushrooming of world-class medical facilities, the rural areas are bereft of even basic healthcare facilities. This has resulted in severe inequities between the urban and rural areas across all major health indicators.
Low levels of healthcare spend: The per capita spend on healthcare (both public and private), as well as the healthcare spend as a portion of the comparable economies, and way below global averages.

Patient/consumer centric healthcare
Given the nature of the healthcare ecosystem in India, several hospitals and other health facilities are waking up to the need for patient-centric care. At the core of this approach is the customer or the patient. It links multiple levels of care management, coordinates services and encourages professional collaboration across a range of care delivery.

Integrated healthcare is another approach that is being increasingly used. It is not about structures or common ownership or bearing insurance risk, but about networks and connections, often between separate organisations, that focus the continuum of healthcare delivery around patients and populations. The models of integrated healthcare vary from entailing contracts with private providers to legislation driven approaches.

Whatever the approach, the objective is to ensure that the most appropriate and efficacious care is provided where and when it is needed. Common among all these approaches are significant initiatives to share information on quality, costs and outcomes across healthcare delivery"the core of connected health.

The connected health ecosystem
This approach to healthcare delivery leverages the systematic application of healthcare information technology to facilitate the accessing and sharing of information, as well as to allow subsequent analysis of health data across systems. The ambition of connected health is to connect all parts of a healthcare delivery system, seamlessly, through interoperable health information processes and technologies so that critical health information is available when and where it is needed.

By structuring and exchanging healthcare information to center care delivery around the patient or a defined population, connected health facilitates improved care coordination, disease management, and the use of clinical practice guidance to help reduce errors and improve care.

The journey to connected health

There are three milestones on the journey to connected health:

1. Healthcare IT adoption: The planning, construction and use of a digital infrastructure.
2. Health information exchange: The exchange of captured health information between clinicians, across administrative groups and with patients.
3. Insight driven healthcare: The use of advanced analysis of data to better inform clinical decision making, population health management and the creation of new care delivery models.

As the functionality and adoption of connected health increases across the health system, so does the potential for increased benefits and the creation of greater levels of value.

Clinical efficacy: Early benefits from healthcare IT adoption and Health Information Exchange include reduction in duplicate tests, quicker access to vital patient information and reduced costs.

Shared knowledge: Deepening connectivity can help reducemedical errors and improve carequality, for example through druginteraction alerts, greater use of evidence-based care protocols and new capabilities in managing population care, which increase the potential for preventive and lowcostcare for chronic conditions.

Care transformation: Advanced analysis of data captured and exchanged in the first two stages informs clinical decision-making population health management and the creation of new care delivery models, including patient self-management and better care coordination across settings.

Although there is close alignment between the stages of the journey, the groups of connected health functionalities and the levels of value creation, each demands careful, dedicated planning, management and expertise if the benefits of connected healthare to serve the interests of clinicians, healthcare organisations, patients and society as whole.

It is advocated that organisations or systems that are embarking on the connected health journey begin with a clear assessment of their own current healthcare IT functionalities as well as their own capabilities and external factors that will influence their journey. We believe that the six dynamics of connected health success provide a solid basis for such analysis.

11.3 HEALTHCARE SCENARIO IN INDIA

India, a country with a centuries-old heritage of medical science, first became familiar with the modern systems of medicine in the 17th century. India

became an independent nation in 1947 and became a Federal Republic in 1950.There have been various developments in the health sector in the postindependence era. But problems like higher population density, low socioeconomic status of a significant number of people and low literacy rate in some parts of the country, have resulted in poor health indicators.

Historical Background

India has a rich, centuries-old heritage of medical and health sciences. The approach of the ancient Indian medical system was one of holistic treatment. The history of healthcare in India can be traced to the Vedic times (5000 BCE), in which a description of the Dhanwanthari, the Hindu god of medicine, emerged. Atharvaveda, one of the four Vedas, is considered to have developed into Ayurveda, a traditional Indian form of holistic medicine. The philosophy of Ayurveda, "Charaka Samhita" (the famous treatise on Medicine compiled by Charaka), and the surgical skill enunciated by Sushrutha, the father of Indian surgery, bear testimony to the ancient tradition of scientific healthcare amongst the Indian people. Historically, the most outstanding hospitals in India were those built by King Ashoka (273-232 BCE). Medicine based on Indian medical principles was taught in the Universities of Taxila and Nalanda.

Transition from Traditional to Modern Medicine

Ayurveda applies theThridhosha theory of disease. Thridhosha describes three dhoshas, or biological elements, which are linked to a patient's health: Vata (wind), Pitta (gall) and Kapha (mucus). Disease is explained as a disturbance in the equilibrium of the three dhoshas, a concept similar to the theory put forward by Greek medicine. Other non-modern systems of medicine, like Unani and homeopathy, are not of Indian origin, but are popular in India even today.

During the 17th and 18th centuries, there was a slow and steady growth of the modern system of medicine in India, starting with the arrival of European Christian missionaries in South India in the 17th century. In 1664 at Chennai, the British opened the first modern hospital for soldiers and, in 1688, another for the civilian population. Organized medical training began with the opening of the first medical college in Calcutta in 1835, followed by a school in Mumbai in 1845 and one in Chennai in 1850.

Health Scenario

Over the past decade, healthcare services available in India have increased dramatically (see table 1).

The doctor-to-population ratio in India is 1:2148. The infant mortality rate is 64 per 1,000 live births. The overall mortality rate has declined from 27.4 in 1991 to 8 per 1,000 population in 2002, and life expectancy at birth has increased from 37.2 years to 60.6 years over the same time period.

Since independence, considerable progress has been achieved in the promotion of health in India. Smallpox has been eliminated, and mortality from cholera and other related diseases has decreased. But episodes of cholera continue to recur, and the incidence of tuberculosis is not insignificant. The situation in regard to public sanitation, preventive healthcare, control of communicable diseases and health education needs to be improved. In addition to the diseases of poverty and malnutrition, noncommunicable diseases related to urbanization, such as diabetes mellitus, hypertension, cardiovascular diseases and cancer is a cause of concern. Road traffic accidents, geriatric problems and complications of autoimmune deficiency syndrome (AIDS) are also on the increase.

Though hospitals, dispensaries, public health centers and other medical facilities are present, they are not sufficient to cater to the growing needs of India's substantial population. Rural access to quality medical service has to be improved. The inadequate manpower of doctors in public sector hospitals is also a concern for health authorities. Furthermore, the infrastructure required in the hospitals, like medicine, furniture and equipment, are not adequate to serve the population. Compounding the problem, government spending on healthcare services is not up to the World Health Organization (WHO) norms of gross domestic product in healthcare.

Though the public sector is not expanding its healthcare services, private, co-operative and other non-profit organizations have started hospitals and are providing medical services to the public. Moreover, the Government of India is taking other steps to improve healthcare. For example, the Government has, from time to time, appointed various committees to address the pervasive problems in the healthcare sector. In addition, it has demonstrated a strong commitment to population control, including the implementation of family planning programs geared towards controlling the population.

The Right to Health and Advances in Healthcare Protection

The Indian Constitution has incorporated the responsibility of the state in ensuring basic nutrition, basic standard of living, public health, protection of workers, special provisions for disabled persons and other health standards, which were described under Articles 39, 41, 42 and 47 in the Directive Principles of state policy. Article 21 of the Constitution of India provides for the right to life and personal liberty and is a fundamental right. Keeping in tune with the universal declaration of human rights and various other developments in the Indian healthcare sector, the judiciary has included the right to health under Article 21. In accordance with the recognition of the fundamental right to health, the Indian Government adopted a national health policy targeted "health for all" by the year 2000. Although the country couldn't achieve all the benchmarks by the targeted date, the Government has set a revised date of 2015, by which time it hopes to meet the millennium development goals.

The judiciary, through the process of judicial activism, has transformed the Indian health scenario. The right to health is now a fundamental right; hospitals are included under the purview of the Consumer Protection Act, ensuring timely and emergency care for patients in all hospitals (the patients can approach the Consumer Forums to redress grievances); and actions are taken against cases of negligence. The legislature has also introduced acts like the Transplantation of Human Organs Act, Prenatal Diagnostic Techniques Act, Medical Termination of Pregnancy Act and others to improve healthcare. The media has also played an important role, by bringing the problems of the healthcare sector to the attention of Government authorities.

Availability of Information and Impact of Information Technology in Healthcare

Consolidated data on the healthcare service is not available, and the mechanism of assimilation of data on the national level is not efficient. However, there are islands of excellence in some of the national institutes and a few other centers. The developments of information technology, such as a computerized hospital information system, are available in some of the centers. In addition, the Indian Space Research Organization (ISRO) has embarked on a telemedicine project, which has potential to provide specialist service to remote areas.

India has made striking progress in health standards in the post-independence era. Still, many feel that the budgetary resources for the health sector should be increased. International developments in information technology need to be utilized at the national level in an attempt for health data documentation. The sustained efforts to control the country's population and the political will to march towards the millennium development goals in health will help India to make a significant impact in the international health scene.

11.4 IMPORTANCE OF ATTITUDE FOR HEALTHCARE PROFESSIONALS

Attitude is important for any profession as it gives it an extra boost. But in healthcare, attitude assumes enormous importance with positivity in attitude becoming an absolute necessity. Yes, all healthcare professionals from the highest surgeons and physicians to even the menial ward boy must always adopt a cheerful disposition and caring behaviour while they are at the hospital. This is because the attitude of healthcare professionals in a hospital influences its relationship with the patients.

Patient relationship management is critical for the success of any hospital as satisfied patients mean more referrals and repeat revenue. But patient satisfaction depends more on the attitude of the healthcare professionals and this is what healthcare HR management focusses on while achieving efficiency for the hospital.

Positive attitude training is imparted by professional healthcare consulting firms to help the hospital staff to maintain a congenial and caring attitude toward patients. This promotes patient satisfaction and loyalty, thereby augmenting the revenue and reputation of the hospital.

Positive attitude to achieve good patient relationship management

A hospital is a place where patients come to redress their health issues and seek remedial treatment. The patients are already in a state of anguish and anxiety due to their trauma. What the patients need is to be courteously attended to, cared of and comforted. They need a promise of hope that their condition will become better on getting treated at the said hospital. To gain this solace, they must receive a positive attitude from the healthcare professionals at the hospital.

This positive attitude from the healthcare professionals will give the patient

- The assurance that he/she is at the right place for treatment
- The hope that he/she will recuperate quickly
- The trust that he will be treated well at the hospital
- The satisfaction that he has made the right choice in selecting the said hospital
- The impetus to refer the said hospital to others.

All these positive outcomes will only work toward building the strength of the hospital in both qualities of service and revenue.

Tips to maintain a positive attitude in healthcare

Healthcare operations management Is not just about offering expert clinical services. It is more of patient relationship management and public relations. Here are some tips to maintain a positive attitude in healthcare.

1. **Maintain cordiality among your coworkers**

To maintain a cheerful disposition while working, the work atmosphere at the hospital must be conducive. Maintain a courteous attitude and cordial relations with all at the hospital. This is vital in ensuring that the hospital offers a peaceful atmosphere to all those who enter.

Sometimes, it is not possible to get along with everyone at the office. There might be differences of opinion on work-related subjects. But always ensure that there are no tensions in the air. Try to remove the problem by open discussion. If the issue cannot be resolved, try to maintain a healthy distance without being rude, uncivil or cold towards that person.

2. **Do not mix personal matters with professional work**

Stress due to personal matters is commonplace these days. Do not allow it to interfere with your work at the hospital. If you are feeling overstressed or depressed, take a short break and calm yourself. You cannot afford to allow this stress to invade your work as it might cause serious errors which cannot b afforded in healthcare.

3. **Discuss any work-related hitches with your superiors**.

Is something bothering you at work? Are you not able to sync with the job ordained to you? Are you over-worked? – take time to list all your problems and seek out an appointment with your department head. See if you can shift to another team or alter your goals and targets. Discuss all your problems frankly and resolve the matter with their help

4. **Burn-out issues**

Some healthcare professionals feel sapped out of energy and burnt out. This is because healthcare is a demanding profession requiring 100% involvement. Try to motivate yourself by thinking of the contribution you make towards healthcare. Pep up yourself by attending refresher courses or seminars to enhance our knowledge. Talk to HR and try to find out opportunities for job promotion.

Positivity breeds positive outcomes and this is most required in healthcare operation management. Keep your hospital staff positive and ever-motivated by imparting positive training from an expert healthcare consulting firm.

11.5 BURNOUT IN HEALTH PROFESSIONALS

Healthcare professionals continue to be the backbone for providing health care and determine the healthcare outcomes across the world. It is well appreciated that the vivacity and the growth of a healthcare institution depend on its faculty's success. He also adds that unfortunately, due to buildup of exceptional pressures on healthcare providers and provider systems, healthcare institutions seem to have lost sight of this aphorism. In recent times, it has been observed that academic healthcare professionals face multiple challenges in the form of navigating manifold responsibilities (clinical and academic) within time constraints, steering through competition, and fulfilling expectations for promotion and advancement – pressures that could predispose to burnout.

Meaning

Burnout has reached rampant levels among United States (US) healthcare professionals, with over one-half of physicians and one-third of nurses experiencing symptoms. The burnout epidemic is detrimental to patient care and may exacerbate the impending physician shortage.

Importance

Freudenberger initially used the terminology “burnout” to exemplify the progressive emotional exhaustion, reduced enthusiasm, and decreased commitment for work amid healthcare volunteers. After years of research, burnout is now well defined as a “psychological syndrome that may emerge when employees are exposed to a stressful working environment with high job demands and low resources.” In the current scenario, job stress and burnout

are significant issues for healthcare professionals. Research has shown that burnout may affect 10%–70% of nurses and 30%–50% of doctors, making it an increasingly recognized entity among this group. Healthcare professionals across all stages of their careers ranging from students, residents, as well as experienced workers, have reported suffering from burnout

What makes it significant is that burnout besides jeopardizing the health and welfare of the professionals has also been linked with increased incidence of medical errors and diminished quality of patient care, which in turn can adversely affect the reputation of the concerned health care institution.

Prevention and interventions

Innovative strategies for prevention of burnout include facilitation of a culture in which faculty of all ranks have more flexibility in their work, a superior sense of satisfaction and recognition of their achievements and success are desirable; which in turn enables sustenance of healthy work personnel and work environment. Hospital administrative policies need to be reformed to include intercessions for the well-being of their staff. Interventions for burnout can be aimed for the individual to enhance the professional's emotional reserves to handle work-related factors; or can focus on the surroundings, endeavoring to alter the work-related settings and to reduce the stress factors; or both together. Interventions to combat stress can also be categorized as primary interventions that intend to reduce recognized risk issues in all the health professionals and secondary interventions that focus on a restricted set of high-risk professionals for the prevention of burnout. Tertiary intercessions are used for professionals who are experiencing burnout to avert loss of personnel.

Causes for Burnout

Healthcare professionals who work for patient's care day in and out in proximity may not often fathom the effect that it may have on their own emotional health and well-being. In addition to patient-related factors, burnout research has identified several work-related factors which include increased workload, time constraints, role conflicts, and lack of autonomy and rewards/recognition to be the perpetuators for the same. In addition, individual or personal traits may also enhance the susceptibility to burnout, such as decreased rationality, low emotional awareness, reduced social attachment, poor interpersonal relations, mood swings, being cooperative and considerate, and meticulousness which have been associated with increased incidence of burnout. Freudenberger emphasized that it is imperative to identify that burnout is not a sudden alteration but represents an accumulation of factors related to duties and work settings over a period of time.

Characteristics of Burnout

1. Emotional exhaustion described as weariness, dwindling of energy, fatigue, and lethargy
2. Detachment and cynicism described as adverse or incongruous attitudes, disconnected outlook, agitation, less idealistic toward patients and profession, and abandonment
3. Decreased feeling of individual achievement and professional inadequacy also described as diminished output or competence, low confidence and self-esteem, and incapability to manage and handle patients.

Consequences of Burnout

Burnout can have important health-related effects, leading to physical as well as psychological complications including dejection, apprehension, diminished self-respect, guiltiness, and increased frustration. Work-related concerns can manifest as discontentedness, diminished quality of care, errors in patient management, unwarranted absence, lack of interest, and negligence.

Finally, the social impact on the health professionals may manifest as family problems and work-home clashes, which in turn can affect the quality of life.

Global and Indian Scenario

There have been numerous studies that have explored the prevalence and the contributing factors for burnout among healthcare professionals in developed countries from North America, Europe, and Australasia as well as several studies that exist in various parts of India. These studies suggest that nowadays, most health professionals are trying to survive rather than flourish in their professions. Further, educational institutions also should be aware that the imminent generation of healthcare professionals may be more at risk for burnout as compared to older generations as they are less amenable to criticism and challenges.

11.6 DESIGNING THE HEALTHCARE WORKPLACE

At its core, any healthcare building is a workplace. So what are the basic elements and best practices behind making that workplace a high-performing one? A panel of designers shared some ideas Monday at the ASHE PDC Summit in San Diego.

In the session “Strategy, Culture, and Healing: The Modern Healthcare Facility as a High-performance Workplace,” moderator Cheryl Durst, EVP/CEO of the International Interior Design Association, led a discussion with Amy Sickeler, interior design principal at Perkins+Will, Edwin Beltran, principal/designer at NBBJ, and Suzen Heeley, executive director of design and construction at Memorial Sloan Kettering Cancer Center.

In terms of what exactly defines “high-performing,” Heeley said that for her organization, it’s all about creating a transformative patient experience. A deep dive at Memorial Sloan Kettering into how exactly that’s done identified three channels: the physical, operational, and digital.

For example, an optimal environment might have places for patients to plug in and recharge, to work, or to store belongings, whereas an operational lens might provide clear care pathways and optimal staffing workflows. Digitally, an app could be made available for patient information or 24/7 clinical support put in use.

Sickeler identified the trend of education within facilities, as well, with hospitals and other buildings serving as hubs where wellness-oriented and preventive health classes are being held. "We are social animals. We like to gather and we like to learn," she said. Additionally, employee wellness amenities will stand to differentiate employers by designing active spaces such as open stairwells filled with daylight and featuring touchdown spaces for ad hoc meetings.

The hospital as a place to educate medical professionals persists, as well, with the need to support a multidisciplinary approach through simulation labs and areas for review of care practices encouraged.

Staff collaboration and designing spaces to support it was one of the biggest trends noted during the session, with Heeley describing a space design at Memorial Sloan Kettering that encourages the comingling of all staff, from physicians to environmental services workers, to share a meal and discuss processes.

Other concepts included opportunities for telemedicine and skipping the traditional conference room and using other types of seating for collaborative meetings and thinking about a sense of privacy through onstage and offstage spaces, as well as in staff lounges to create an optimal staff experience, Heeley said.

Some design best practices for supporting the healthcare workplace offered by Beltran included Lean design to be resourceful in how space is utilized to improve the patient experience, the use of rapid prototyping with staff to achieve early buy-in on new designs, and virtual reality to provide an experiential view of a space before it’s built.

As for what’s to come, Heeley said the greatest need for workspaces will be flexibility. “What’s scary is that things are really unpredictable out there right now,” she said. Buildings will be required to allow new technology to be integrated quickly or processes enhanced easily.

11.7 FUTURE CHALLENGES FOR HEALTH CARE

Forecasting the future of health care and health policy is an imperfect science. Among the predictions made in the mid-1980s were that there would be a physician surplus, a growing number of elderly people, an increase in the number of people in managed care plans, restructured health benefits, new technologies, more for-profit health care delivery, rising health care costs, and a restrained federal government role. All of these issues–with the exception of a physician surplus, which is still being debated–turned out to have an impact on health policy. Several of these will continue to challenge policymakers during the next decade, and new or reemerging issues will also pose challenges.

Rising health care costs. We predicted in 1986 that health care spending would reach 14 percent of the nation's gross domestic product (GDP) by 2000. In 2001, it reached 14.1 percent of GDP, and it is expected to be 17.7 percent by 2012. In the 1990s, it was thought that managed care and government limits on overall spending would restrain rising costs. Although managed care did restrain cost growth for a few years, the recent performance of individual health plans suggests that this will not be a major vehicle for future cost containment. The government is likely to try to constrain Medicare and Medicaid spending, but it is unlikely that there will be an overall national limit placed on health care spending, such as that proposed by the Clinton administration. Rather, we expect to see both business and government asking the public to pay more out of pocket for their health insurance and the care they receive.

The tiering of health care. Historically, disparities in access to health care and health outcomes were seen between insured and uninsured people. However, the new approach to cost containment, which asks individuals to pay more for their own health care, is going to lead to tiering, in which those with higher incomes will be able to afford a wider range of health care services than much of the middle class and those with lower incomes. This trend is already visible. Several studies have found that middle-class insured people experience more problems getting care that are related to cost than do people with higher incomes. In addition, middle-class people are substantially more worried than those with higher incomes about paying for health insurance and health care in the future.

Growing numbers of elderly people. During the next decade, the proportion of U.S. citizens who are age 75 or older will grow from 17 million to 19 million. Death rates are steadily decreasing, while life expectancy has been increasing. These trends would suggest a rapid increase in funding for long-term care and the development of alternatives to nursing homes. But reduced state budgets, Medicare trust fund projections, employer reductions in retiree health benefits, and slow growth in the private long-term care insurance market suggest that the nation's older elderly will experience tiering in health care and shortages of some services. Individuals with higher incomes and private long-term care insurance coverage will have a wide variety of options available to them. But because of both insufficient financing and a lack of

available services, middle-class people and those who rely on publicly financed

The uninsured. In 2001, 41 million people had no health insurance. During the early 1990s, the number of uninsured decreased as more people gained insurance through their employers. But by the end of the decade, the number of uninsured had again increased, as the economy softened and the number of people with employer-sponsored coverage decreased. We see nothing to suggest that this trend will not continue. A substantial body of research has shown that the uninsured do not receive the same amount of care as those with insurance, suffer serious health consequences as a result of being uninsured, and face serious financial problems when they do get care. Local health care systems, and safety-net hospitals in particular, experience financial strain when providing care for a large uninsured population. Without major new government spending, local health care systems will come under increasing financial pressure as the number of uninsured grows.

New technologies. In the mid-1980s, organ transplants were the expensive new technology, and the financing of these procedures is still difficult. But there are many new and expensive technologies on the horizon, drugs in particular, that are likely to be only partially covered by insurance. The recent debate over a Medicare drug benefit has publicized the lack of drug coverage among the elderly. However, what is less well known is that although many people with employer-sponsored insurance have drug coverage, they are being asked to assume an increasing proportion of the cost of their prescriptions. Thus, there may well be a conflict between the public's interest in new technologies and efforts by government and employers to restrict coverage in an effort to control costs. With 89 new pharmaceuticals approved by the Food and Drug Administration and almost 4,000 clinical trials for new medicines taking place in 2002, it remains to be seen how many of these new treatments will be fully covered by insurance. In addition, this lack of comprehensive coverage may discourage pharmaceutical companies from developing products that are clinically beneficial but not financially advantageous.

New and reemerging infectious diseases. During the 1980s and well into the 1990s, the health field shifted its attention to the problem of chronic disease, and took the view that infectious diseases were no longer a threat in the United States. The recent emergence of severe acute respiratory syndrome and West Nile virus, the steady increase in HIV/AIDS domestically and its rapid growth worldwide, and the emergence of multidrug-resistant bacteria have challenged this view. It is now clear that infectious diseases remain a threat, which will likely lead to greater interest in specialization in infectious disease and in rebuilding the public health system.

The threat of terrorism. The health care system will face increasing challenges in preparing to deal with the aftermath of terrorist attacks. In many cases, these preparations will require the diversion of other resources. Hospital bed closures during the past decade have substantially weakened the surge capacity of the system. As shown by its response to the anthrax attacks in the fall of 2001, the public health system lacks the capacity to quickly and effectively deal with a bioterrorist attack. There will be considerable pressure

to improve the capacity of local public health systems in coming years in order to ensure that these systems are prepared.

Rediscovery of lifestyle-related health issues. Smoking and obesity are among the major threats to health in the United States. Although many such lifestyle issues have been important to public health since the 1970s, we may see businesses and government becoming increasingly involved in trying to change behaviors, in order to keep health care costs down. Possible actions include the introduction of new insurance products that provide a carrot-and-stick incentive system for enrollees. Positive incentives to engage in or maintain healthy behaviors might include discounted health club memberships and free smoking cessation programs. Individuals who do not work to change unhealthy behaviors might be sanctioned. For example, people who smoke might have to pay more for their health insurance.

Based on the experiences of the past decade, the biggest challenge facing the U.S. health care system, however, does not appear to be any of those listed above. Rather, it is the continued failure of decisionmakers to reach a consensus on how to address the major health care problems facing the country. Several factors contribute to this failure: declining levels of civic participation; a high level of public distrust in the federal government; growing partisanship; a hardening of ideologies; and highly organized, powerful special interest groups.

11.8 GROWTH OF HEALTH PSYCHOLOGY

Mental and physical health often go hand-in-hand. A disturbance to the well-being of one usually produces an effect on the other. Patients diagnosed with mental illness are often at risk of poor health and premature death, and patients diagnosed with chronic disease often experience negative psychological effects. As the future of healthcare continues to evolve under reform, so will our nation's focus on how medical and mental health care are intertwined. And as integrated care—combining mental and primary health care providers into one coordinated team—moves to the forefront of health care, the opportunities for individuals specializing in health psychology are likely to grow.

Meaning

Health psychology is a rapidly growing field. As increasing numbers of people seek to take control of their own health, more and more people are seekinghealth-related information and resources.

What is a Health Psychologist?

Clinical health psychologists study the relationship between physical and mental health, specifically the psychological and behavioral reactions associated with chronic illness and health problems. While many branches of psychology focus on treatment, counseling, and social work, health psychologists' work often specializes in prevention, addressing problems at the earliest possible stage—before they even emerge. By using behavioral

change to encourage healthy habits, health psychologists try to prevent illness before it becomes a problem. From a general standpoint, this usually involves working with patients to stop activities such as smoking or drinking and finding ways that work for the patient to eat more healthy foods and exercise more regularly.

Many specialty areas exist within health psychology. Some areas of concentration include:

- Learning and development disorders, including autism and ADD/ADHD
- Pediatric psychology
- Clinical Psychology
- LGBT health
- Women's health
- Eating disorders and body image issues
- Addictions/substance abuse treatment
- Pain management
- Occupational health
- Grief and bereavement

Where Do Health Psychologists Work

Some health psychologists work directly with patients, but many also work with other health professionals. They may work with clinical psychologists, for example, educating them on how best to encourage their patients to adopt healthy behaviors. Health psychologists also play an important role in helping individuals and families cope with the psychological effects that result from a serious illness or the diagnosis of a chronic disease or terminal illness. While many health psychologists work in clinical settings—directly helping patients cope, aiding communication between doctors and patients, and so on – many work in a research setting, or private practice as well. As the rising cost of healthcare becomes a national concern, health psychologists can help find answers and provide solutions. Their research can help identify the causes of health problems, prevent re-hospitalization of patients, understand the behavioral reasons behind poor health choices and find ways to encourage a healthy lifestyle.

11.9 TERMINOLOGIES

1.Health care 2. Attitude 3. Professionals 4. Workplace 5. Health psychology

11.10 MODEL QUESTIONS

1. Explain the factors in Indian Healthcare?
2. Discuss the importance of attitude for healthcare professionals?
3. Bring out the Burnout in Health professionals?
4. Discuss the Healthcare workplace?
5. Discuss the Growth of health psychology?

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BLOCK IV: MANAGEMENT SYSTEM

UNIT-XII PAIN MANAGEMENT CONTROL OF PAIN

Structure

12.1 INTRODUCTION

Pain management, pain medicine, pain control or algiatry, is a branch of medicine employing an interdisciplinary approach for easing the suffering and improving the quality of life of those living with chronic pain. The typical pain management team includes medical practitioners, pharmacists, clinical psychologists, physiotherapists, occupational therapists, physician assistants, nurses, dentists. The team may also include other mental health specialists and massage therapists. Pain sometimes resolves promptly once the underlyingtrauma or pathology has healed, and is treated by one practitioner, with drugs such as analgesics and (occasionally) anxiolytics. Effective management of chronic (long-term) pain, however, frequently requires the coordinated efforts of the pain management team. Effective pain management does not mean total eradication of all pain.

Medicine treats injuries and diseases to support and speed healing, and it treats distressing symptoms such as pain to relieve sufferingduring treatment, healing, and dying. When a painful injury or pathology is resistant to treatment and persists, when pain persists after the injury or pathology has healed, and when medical science cannot identify the cause of pain, the task of medicine is to relieve suffering. Treatment approaches to chronic pain include pharmacological measures, such as analgesics, antidepressants and anticonvulsants, interventional procedures, physical therapy, physical exercise, application of ice or heat, and psychological measures, such as biofeedbackand cognitive behavioral therapy.

Uses

Pain can have many causes and there are many possible treatments for it. In the nursing profession, one common definition of pain is any problem that is "whatever the experiencing person says it is, existing whenever the experiencing person says it does".Different sorts of pain management address different sorts of pain.

Pain management includes patient communication about the pain problem. To define the pain problem, a health care provider will likely ask questions such as these:

- How intense is the pain?
- How does the pain feel?
- Where is the pain?
- What, if anything, makes the pain lessen?
- What, if anything, makes the pain increase?
- When did the pain start?

After asking questions such as these, the health care provider will have a description of the pain. Pain management will then be used to address that pain.

Mild pain

Paracetamol (acetaminophen), or a nonsteroidal anti-inflammatory drug (NSAID) such as ibuprofen.

Mild to moderate pain

Paracetamol, an NSAID or paracetamol in a combination product with a weak opioid such as tramadol, may provide greater relief than their separate use. Also a combination of opioid with acetaminophen can be frequently used such as Percocet, Vicodin, or Norco.

Moderate to severe pain

When treating moderate to severe pain, the type of the pain, acute or chronic, needs to be considered. The type of pain can result in different medications being prescribed. Certain medications may work better for acute pain, others

for chronic pain, and some may work equally well on both. Acute pain medication is for rapid onset of pain such as from an inflicted trauma or to treat post-operative pain. Chronic pain medication is for alleviating long-lasting, ongoing pain.

Nonsteroidal anti-inflammatory drugs

The other major group of analgesics are nonsteroidal anti-inflammatory drugs (NSAID). They work by inhibiting the release of prostaglandins, which cause inflammatory pain.Acetaminophen/paracetamol is not always included in this class of medications. However, acetaminophen may be administered as a single medication or in combination with other analgesics (both NSAIDs and opioids). The alternatively prescribed NSAIDs such as ketoprofen and piroxicam have limited benefit in chronic pain disorders and with long-term use are associated with significant adverse effects. The use of selective NSAIDs designated as selective COX-2 inhibitors have significant cardiovascular and cerebrovascular risks which have limited their utilization. Common NSAIDs include aspirin, ibuprofen, and naproxen.

Antidepressants and antiepileptic drugs

Some antidepressant and antiepileptic drugs are used in chronic pain management and act primarily within the pain pathways of the central nervous system, though peripheral mechanisms have been attributed as well. They are generally used to treat nerve brain that results from injury to the nervous system. Neuropathy can be due to chronic high blood sugar levels (diabetic neuropathy); and viruses, such as shingles; phantom limb pain; or post-stroke pain. These mechanisms vary and in general are more effective inneuropathic pain disorders as well as complex regional pain syndrome. A common anti-epileptic drug is gabapentin, and an example of an antidepressant would be amitriptyline.

Other analgesics

Other drugs are often used to help analgesics combat various types of pain, and parts of the overall pain experience, and are hence called analgesic adjuvant medications. Gabapentin—an anti-epileptic—not only exerts effects alone on neuropathic pain, but can potentiate opiates. While perhaps not prescribed as such, other drugs such as Tagamet (cimetidine) and even simple grapefruit juice may also potentiate opiates, by inhibiting CYP450 enzymes in the liver, thereby slowing metabolism of the drug. In addition,orphenadrine, cyclobenzaprine, trazodone and other drugs with anticholinergic properties are useful in conjunction with opioids for neuropathic pain. Orphenadrine and cyclobenzaprine are also muscle relaxants, and therefore particularly useful in painful musculoskeletal conditions. Clonidine has found use as an analgesic for this same purpose, and all of the mentioned drugs potentiate the effects of opioids overall.

12.2 PAIN

Pain is a distressing feeling often caused by intense or damaging stimuli. The International Association for the Study of Pain's widely used definition

defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" In medical diagnosis, pain is regarded as a symptom of an underlying condition.

Pain motivates the individual to withdraw from damaging situations, to protect a damaged body part while it heals, and to avoid similar experiences in the future. Most pain resolves once the noxious stimulus is removed and the body has healed, but it may persist despite removal of the stimulus and apparent healing of the body. Sometimes pain arises in the absence of any detectable stimulus, damage or disease.

Pain is the most common reason for physician consultation in most developed countries. It is a major symptom in many medical conditions, and can interfere with a person's quality of life and general functioning. Simple pain medications are useful in 20% to 70% of cases. Psychological factors such as social support, hypnotic suggestion, excitement, or distraction can significantly affect pain's intensity or unpleasantness. In some debates regarding physician-assisted suicide oreuthanasia, pain has been used as an argument to permit people who are terminally ill to end their lives.

Three dimensions of pain

In 1968 Ronald Melzack and Kenneth Casey described chronic pain in terms of its three dimensions:

- "sensory-discriminative" (sense of the intensity, location, quality and duration of the pain),
- "affective-motivational" (unpleasantness and urge to escape the unpleasantness), and
- "cognitive-evaluative" (cognitions such as appraisal, cultural values, distraction and hypnotic suggestion).

In 1994, responding to the need for a more useful system for describing chronic pain, the International Association for the Study of Pain (IASP) classified pain according to specific characteristics:

1. region of the body involved (e.g. abdomen, lower limbs),
2. system whose dysfunction may be causing the pain (e.g., nervous, gastrointestinal),
3. duration and pattern of occurrence,
4. intensity and time since onset, and
5. cause

However, this system has been criticized by Clifford J. Woolf and others as inadequate for guiding research and treatment. Woolf suggests three classes of pain:

1. nociceptive pain,
2. inflammatory pain which is associated with tissue damage and the infiltration of immune cells, and

3. pathological pain which is a disease state caused by damage to the nervous system or by its abnormal function (e.g. fibromyalgia, peripheral neuropathy, tension type headache, etc.).

12.3 CHRONIC PAIN CONTROL TECHNIQUES

Coping techniques for chronic pain begin with controlled deep breathing, as follows:

- Try putting yourself in a relaxed, reclining position in a dark room. Either shut your eyes or focus on a point.
- Then begin to slow down your breathing. Breathe deeply, using your chest. If you find your mind wandering or you are distracted, then think of a word, such as the word "Relax," and think it in time with your breathing...the syllable "re" as you breathe in and "lax" as you breathe out.
- Continue with about 2 to 3 minutes of controlled breathing.
- Once you feel yourself slowing down, you can begin to use imagery techniques.

Eleven specific imagery and chronic pain control techniques that are effective for pain control include:

1. **Altered focus**
   This is a favorite technique for demonstrating how powerfully the mind can alter sensations in the body. Focus your attention on any specific non-painful part of the body (hand, foot, etc.) and alter sensation in that part of the body. For example, imagine your hand warming up. This will take the mind away from focusing on the source of your pain, such as your back pain.
2. **Dissociation**
   As the name implies, this chronic pain technique involves mentally separating the painful body part from the rest of the body, or imagining the body and mind as separate, with the chronic pain distant from one's mind. For example, imagine your painful lower back sitting on a chair across the room and tell it to stay sitting there, far away from your mind.

3. **Sensory splitting**
   This technique involves dividing the sensation (pain, burning, pins and needles) into separate parts. For example, if the leg pain or back pain feels hot to you, focus just on the sensation of the heat and not on the hurting.
4. **Mental anesthesia**
   This involves imagining an injection of numbing anesthetic (like Novocain) into the painful area, such as imagining a numbing solution being injected into your low back. Similarly, you may then wish to

imagine a soothing and cooling ice pack being placed onto the area of pain.

5. **Mental analgesia**
   Building on the mental anesthesia concept, this technique involves imagining an injection of a strong pain killer, such as morphine, into the painful area. Alternatively, you can imagine your brain producing massive amount of endorphins, the natural pain relieving substance of the body, and having them flow to the painful parts of your body.

6. **Transfer**
   Use your mind to produce altered sensations, such as heat, cold, anesthetic, in a non-painful hand, and then place the hand on the painful area. Envision transferring this pleasant, altered sensation into the painful area.
7. **Age progression/regression**
   Use your mind's eye to project yourself forward or backward in time to when you are pain-free or experiencing much less pain. Then instruct yourself to act "as if" this image were true.
8. **Symbolic imagery**
   Envision a symbol that represents your chronic pain, such as a loud, irritating noise or a painfully bright light bulb. Gradually reduce the irritating qualities of this symbol, for example dim the light or reduce the volume of the noise, thereby reducing the pain.
9. **Positive imagery**
   Focus your attention on a pleasant place that you could imagine going - the beach, mountains, etc. - where you feel carefree, safe and relaxed.
10. **Counting**
    Silent counting is a good way to deal with painful episodes. You might count breaths, count holes in an acoustic ceiling, count floor tiles, or simply conjure up mental images and count them.
11. **Pain movement**
    Move chronic back pain from one area of your body to another, where the pain is easier to cope with. For example, mentally move your chronic back pain slowly into your hand, or even out of your hand into the air.

Some of these techniques are probably best learned with the help of a professional, and it usually takes practice for these techniques to become effective in helping alleviate chronic pain. It is often advisable to work on pain coping strategies for about 30 minutes 3 times a week. With practice, you will find that the relaxation and chronic pain control become stronger and last longer after you are done.

Sometimes, after you are good at using the techniques, you can produce chronic pain relief and relaxation with just a few deep breaths. You can then start to use these techniques while you are engaged in any activity, working, talking, etc. With enough experience you will begin to feel a greater sense of control over the chronic pain and its effects on your life.

12.4 CHRONIC PAIN: MANAGEMENT AND TREATMENT

There are a variety of options for the treatment of chronic pain. Under the general category of medications, there are both oral and topical therapies for the treatment of chronic pain. Oral medications include those that can be taken by mouth, such as nonsteroidal anti-inflammatory drugs, acetaminophen, and opioids.

How is chronic pain treated?

Although no single cure is available for chronic pain, there are many ways to treat and manage it. The first step should be to treat any underlying conditions that may cause pain. These treatment methods will vary according to the specific disease or medical condition. The treatment also will depend on the type of chronic pain involved. It is recommended that a team of healthcare professionals work with the patient to develop a comprehensive plan for treating and managing pain, instead of relying solely on medications. The focus should be on development of self-management skills, along with lifestyle changes and efforts to improve physical and mental health. The plan should include psychological and behavioral therapy.

Drug treatments for chronic pain

- **Analgesics (pain relievers):** The use of pain relievers is the most common method for treating chronic pain. These drugs do not work in all cases, however.
  - **Non-narcotic pain relievers: Nonsteroidal anti-inflammatory drugs (NSAIDs)**such as aspirin, ibuprofen, naproxen, or COX-2 inhibitors may be useful when the pain is mild or moderate. There are many other types of NSAIDs. NSAIDS work by blocking pain near the pain site. Acetaminophen is a non-NSAID pain reliever that works by blocking pain in the brain.
  - **Opioids, opioid-like agents, or combinations of opioids and non-narcotic analgesics:** Any of these may be prescribed to reduce pain. Opioids work in the brain, central nervous system, and other areas of the body to block the sensation of pain. Because of the way they work, they have many negative side effects. Opioids are most useful with acute pain such as pain after surgery or trauma and are usually reserved for cases of chronic pain when other pain relievers are not effective and when the negative side effects are manageable.
- **Topical products:** Over-the-counter creams and ointments containing capsaicin (a substance generating heat) may be applied directly to the skin three to four times per day. Lidocaine (a local anesthetic) creams or patches also can treat chronic pain.
- **Antidepressants:** Many chronic pain patients may benefit from taking anti-depressant drugs. This is because the same chemicals linked to depression also play a role in chronic pain. Types of antidepressants prescribed include tricylic antidepressants, selective serotonin reuptake inhibitors (SSRIs), and others.

- **Anticonvulsants (anti-epileptics):** These drugs may be used to treat various neuropathic pain conditions. Such conditions include nerve injuries and diabetic nerve pain.
- **Sedatives/anti-anxiety agents:** These may be prescribed for short-term treatment of sleep problems including insomnia (sleeplessness).
- **Muscle relaxants.**
- **Corticosteroids.**
- **Antirheumatics/immunological agents.**
- **Botulinum toxins.**

Non-drug treatments for chronic pain

- **Exercise:** Light to moderate exercise may help improve blood and oxygen flow to muscles and reduce stress. It may be especially helpful for people with low back pain, arthritis, psychogenic pain, and many others.
- **Heat and/or cold application:** Applying heat and/or cold regularly to a sore area via a safe mechanism (such as hot or cold packs that have temperature limits built in to prevent burning or freezing skin) can be very effective for treating many types of pain.
- **Acupuncture:** Acupuncture done by a trained therapist can provide relief for all types of chronic pain.
- **Massage:** Massage therapy has been shown to be effective for muscle and mechanical pain and may be useful for other kinds of chronic pain as well.
- **Spinal cord stimulation:** Electrodes are placed inside the epidural part of the spinal cord. The patient can send electrical pulses to the spinal cord using an implanted electrical pulse generator. The electrical impulses interrupt the pain signal to the brain providing relief.
- **Deep brain stimulation:** This technique is only used to treat chronic pain in cases that do not respond to more conservative treatment. It requires surgical stimulation of areas of the brain, usually the motor cortex or thalamus.

Psychological and behavioral treatments for chronic pain

- **General mental health and behavioral counseling:** Mental health professionals such as psychotherapists, psychologists, and social workers can work with patients. Goals are for the patients to improve coping skills and develop strategies to reduce stress, anxiety, depression, and sleep problems.
- **Cognitive behavioral therapy (CBT):** This form of treatment focuses on gaining coping skills, such as how to identify and change negative thoughts and learning relaxation techniques. These, in turn, will help the person gain more control over his or her emotions and moods as well as more control over feelings of pain.
- **Fear-avoidance training:** People with chronic pain may avoid movement and activity and not get enough activity due to their fear of re-injury or pain. Treatment includes education, instruction on active pain management techniques, and routine exposure to activities that the patient may have avoided in the past.

Mind-body treatments for chronic pain

- **Relaxation techniques:** These include breathing exercises and other relaxation method.
- **Mindfulness training.**
- **Meditation.**
- **Biofeedback:** Patients can learn this technique to control the body's functions, including heart rate and muscle tension.
- **Music:** Listening to different types of music has been shown to change brain waves and can be very effective in treating pain.
- **Art therapy.**
- **Pet therapy.**
- **Reiki:** A technique in which the therapist can channel energy into the patient by means of touch in order to activate the natural healing processes to help with pain.
- **Guided imagery:** This self-care technique is highly effective in significantly reducing anxiety and pain.
- **Aromatherapy:** Different aromas can be used to reduce pain and anxiety.
- **Healing Touch:** A healing energy therapy that uses a practitioner's hands to intentionally influence energy fields to promote healing through reduction of pain, anxiety, and fatigue and to improve overall emotional health. Has been used for abdominal pain as well as pain from cancer, sickle cell disease, and heart surgery.

12.5 THE PLACEBO EFFECT

A placebo is an inert substance or treatment which is designed to have no therapeutic value. Common placebos include inert tablets, inert injections, sham surgery, and other procedures

A **placebo** is an inert substance or treatment which is designed to have no therapeutic value.Common placebos include inert tablets (like sugar pills), inert injections (like saline), sham surgery, and other procedures.

In general, placebos can affect how patients perceive their condition and encourage the body's chemical processes for relieving pain and a few other symptoms, but have no impact on the disease itself. Improvements that patients experience after being treated with a placebo can also be due to unrelated factors, such as regression to the mean (a natural recovery from the illness). The use of placebos in clinical medicine raises ethical concerns, especially if they are disguised as an active treatment, as this introduces dishonesty into the doctor–patient relationship and bypasses informed consent. While it was once assumed that this deception was necessary for placebos to have any effect, there is now evidence that placebos can have effects even when the patient is aware that the treatment is a placebo.

In drug testing and medical research, a placebo can be made to resemble an active medication or therapy so that it functions as a control; this is to prevent

the recipient or others from knowing (with their consent) whether a treatment is active or inactive, as expectations aboutefficacy can influence results. In a clinical trial any change in the placebo arm is known as the placebo response, and the difference between this and the result of no treatment is the placebo effect. Some researchers now recommend comparing the experimental treatment with an existing treatment when possible, instead of a placebo.

Confounding factors

Placebo-controlled studies, as well as studies of the placebo effect itself, often fail to adequately identify confounding factors. False impressions of placebo effects are caused by many factors including:

- Regression to the mean (natural recovery or fluctuation of symptoms)
- Additional treatments
- Response bias from subjects, including scaling bias, answers of politeness, experimental subordination, conditioned answers;
- Reporting bias from experimenters, including misjudgment and irrelevant response variables.
- Non-inert ingredients of the placebo medication having an unintended physical effect

12.6 PSYCHOLOGICAL CONTROL

Psychological control, sometimes called psychologicalintrusiveness, is the extent to which parents try to control the child's emotional state or beliefs. ... The core of psychological control is that it assualts the child's self.

Research has shown that psychological approaches such as cognitive behaviour therapy (CBT), mindfulness and hypnotherapy can be important components in improvingpain management and indeed for warding off or being of benefit if anxiety or depression develop.

The Role of Psychology in Pain Management

Scene: A psychologist's office during an initial evaluation of an individual with chronic pain; the patient shifts uncomfortably in his chair, visibly distressed, slightly confused.

Patient: "I'm in pain, I'm not crazy!" (Alternate dialogue: "If I'm seeing you, does this mean my doctor thinks my pain is all in my head?")

Psychologist: Reassures patient that he is not crazy and that his pain experience is indeed real. Explains that psychosocial factors can contribute to the maintenance or exacerbation of the pain problem and that emotional distress can develop as a consequence of chronic pain.

This scenario repeats itself in various forms during most initial encounters between psychologists working in pain management and the patients in their care. Individuals with pain seldom spontaneously seek assistance from psychologists; the encounters nearly always involve consultation with third-

party referral sources. Referring clinicians may understand that collaboration with a psychologist can be a valuable part of comprehensive pain management but may not be comfortable explaining the recommendation or psychology referral to the patient. It is evident from the concern expressed by such patients that the role of the psychologist in pain management is not always well understood. This article will attempt to familiarize the reader with the various functions a psychologist can serve in pain management within a variety of settings, and will attempt to demystify the psychological evaluation and treatment process of a patient with chronic pain.

Psychologists Fill Multiple Roles

The psychologist involvement does not have to be limited to the role of 'last resort' for patients with physical complaints or with disability exceeding pathophysiological explanations. Although mental health involvement can be helpful for these suspected 'psychogenic' or somatoform disorders, a psychologist can be involved in many other aspects of pain management of any pain condition.

Setting the Scene for Psychological Treatment

Psychologists may be called upon to provide treatment at various stages of pain management, filling different roles at different times.

Pre-Intervention Educator. Patient education can be helpful any time during the treatment process. However, education can be especially critical before certain pain management interventions.

Informational sessions can involve both the patient and family in order to:

1. prepare and educate about a specific procedure (e.g., surgical implantation of a SCS; definitions of addiction vs. tolerance vs. dependence)
2. clarify and reorient the patient to appropriate outcome expectations
3. set appropriate and manageable goals
4. increase motivation. Education itself can serve to reduce fear and anxiety about actual surgical/medical procedures, the recovery process, risks, and alternatives

Educational sessions might typically involve distribution of written material about a particular procedure, presentation of videos depicting surgical methods (e.g., of SCS or DAS implantation), and discussion about the patient's particular concerns.

Pre-Intervention Counselor. If patient's concerns about a particular recommended intervention persist even after they are well-informed of the process, pre-intervention counseling can then be beneficial.

This targeted counseling can help the patient alter negative perceptions about the intervention. If a psychological assessment was conducted prior to trial or implantation of an intrathecal infusion pump, spinal cord stimulator, or surgery (e.g., fusion, laminectomy), the psychologist can use that information to determine and treat specific psychological risk factors for chronic

pain/disability that may present barriers to recovery following surgery or implantation.

Consider the patient who fears the stigma or addiction potential of a regimen of oral opioids. This patient can benefit from discussions designed to help them identify their beliefs about pain and pain treatment and generate alternative beliefs that are more adaptive and productive. Role-playing can help the patient become an assertive health care consumer and learn how to appropriately ask questions and effectively interact with their physicians and whole treatment team. Cognitive-behavioral therapy to reduce significant emotional distress prior to intervention can increase the likelihood of the best possible post-intervention outcome.

Therapies for behavior change, such as smoking cessation or weight management, are also helpful at this pre-intervention stage so that surgical recovery is enhanced. Beginning counseling at this stage can also establish a support system that can last throughout the duration of the intervention and be in place well ahead of crisis moments.

Pain Psychologist. Psychological/behavioral therapy can be effective and helpful prior to, during, and after 'medical' therapies, in conjunction with these therapies and, in some instances, as an alternative to medical therapies. Such therapy is useful to:

1. help the patient understand the dynamic interaction between pain and mood
2. help reduce emotional distress associated with the chronic pain experience
3. address long-standing psychopathology
4. help the patient develop adaptive strategies and skills to cope with stress and pain

Psychological treatment for an individual with chronic pain can be provided in a variety of formats: individual therapy, group therapy, family counseling, or group psychoeducational sessions. Approaches vary, but typically fall under the umbrella terms of behavioral or cognitive-behavioral therapy (CBT). CBT for chronic pain is a term that covers a wide array of interventions that share a set of theoretical assumptions about interactions between thoughts/cognitions, mood, behaviors, and environmental events that combine to determine patients' subjective pain perceptions. CBT interventions involve education and skills acquisition.

12.7 PSYCHOLOGICAL APPROACHES TO PAIN MANAGEMENT

Pain management is an area of modern medicine which utilises the multi-disciplinary team to help ease the pain and suffering of patients living with long-term pain to improve their quality of life.Medicine is usually the first port of call to manage pain, however, when pain is not responsive to medication, or resistant to treatment, or persists after healing has occurred and an exact cause

of the pain has not been found the alternative treatment or a combined approach can be used.

The alternative to medicine or combined approaches to pain management are broad and each of which can be based upon different paradigms of understanding pain. The different approaches come from the wide range of healthcare professionals unique treatments towards pain management, not only limited to Mental-Health or Psychiatrists but can include Physiotherapists, Occupational Therapists, Nurse Practitioners, Medics, Nuse Specialists and Massage Therapists.

Different Types of Management/Treatment

The techniques these professionals use can be and not limited to: (This list is not exhaustive and please add more!)

- Patient Education
- Operant Conditioning Approaches
- Cognitive Behavioural Therapy
- Distraction
- Classical Conditioning Approaches
- Social Support Methods
- Relaxation Methods
- Acceptance and Commitment Therapy
- Hypnosis
- Biofeedback

What Is the Psychological Approach to Pain Management

As well as the neural interactions and links the brain goes through when a person is in pain, there are multiple layers of complex abstract thoughts and feelings a person goes through which culminates how much pain a person feels and how they deal with pain. Their cognitive constructs, behavioural constructs and environmental influences are all intertwined in a complex web of individuality which need to be considered and incorporated into any treatments for them to be effective and are found out during an initial assessment. It is these personal, individual and holistic areas which make it a psychological approach sitting within the biopsychosocial model of patient treatment.

Assessment Considerations

According to Asmundson et al an in-depth and thorough assessment is required to discover the root cause of psychological aspects of pain and person

specific influence which will be integral to know when it comes to selection and direction of treatment. There are a number of areas which need to be covered in the assessment but arguably the most important is the consideration of the pain intensity, severity and irritability along with location, distribution and duration. This is a useful marker for measuring pain and as a tool for differential diagnosis but asking how the patient is affected functionally is an important consideration but also cruical to confirming the subjective reports of the patient. Tools such as the Visual Analogue Scale, 4-Item Pain Intensity Measure or theShort-form McGill Pain Questionnaire. Another area of consideration are the various "empirically supported and theoretically relevant cognitive, behavioural and environmental influences" which are person specific and can aid in assessment and conclusions relevant for treatment.

The idea of looking out for cognitive, behavioural and environmental influences ties with the concept of the Flag System which includes Yellow, Blue, Orange, Black and Red flags as universal indicators of how different psychological, and clinical signs can influence treatment outcomes. Head over to the page to find out more about it.

12.8 PSYCHOLOGICAL INTERVENTIONS

Cognitive Behavioural Therapy

Cognitive Behavioural Therapy (CBT) is Cognitive Behavioural Therapy (CBT) is a method that can help manage problems by changing the way patients would think and behave. It is not designed to remove any problems but help manage them in a positive manner.

Behaviour therapy (BT) was developed in the 1950's independently in three countries: South Africa, USA and England . It was further developed to Cognitive Therapy (CT) in the 1970's by Dr Aaron Beck with its main application on people with depression, anxiety and eating disorders . However, the main evidence today focuses on CBT, after the merging of BT and CT in the late 80's

Below is a breakdown of the different aspects of CBT as a concept incorporating its namesake; both cognitive and behavioural elements. These elements can be taken further and take into account two of the most important theories to a behaviourist: operant and classical (respondent) conditioning.

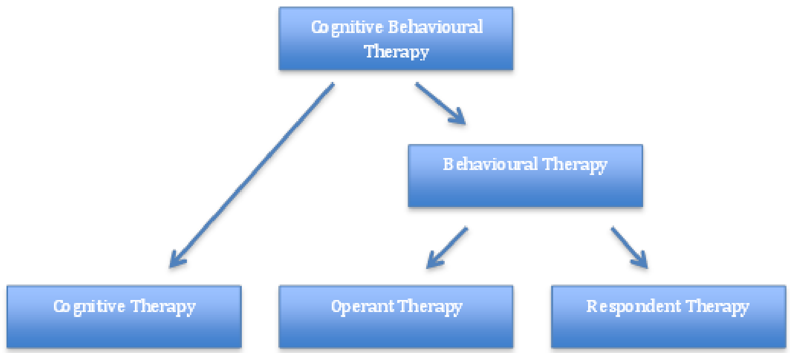


Fig.1 - Breakdown of CBT theory

CBT has six phases:

1. Assessment or psychological assessment;
2. Reconceptualization;
3. Skills acquisition;
4. Skills consolidation and application training;
5. Generalization and maintenance;
6. Post-treatment assessment follow-up.

The reconceptualization phase makes up much of the "cognitive" portion of CBT.

A simplistic and broad understanding of the CBT model and cycle are shown below.

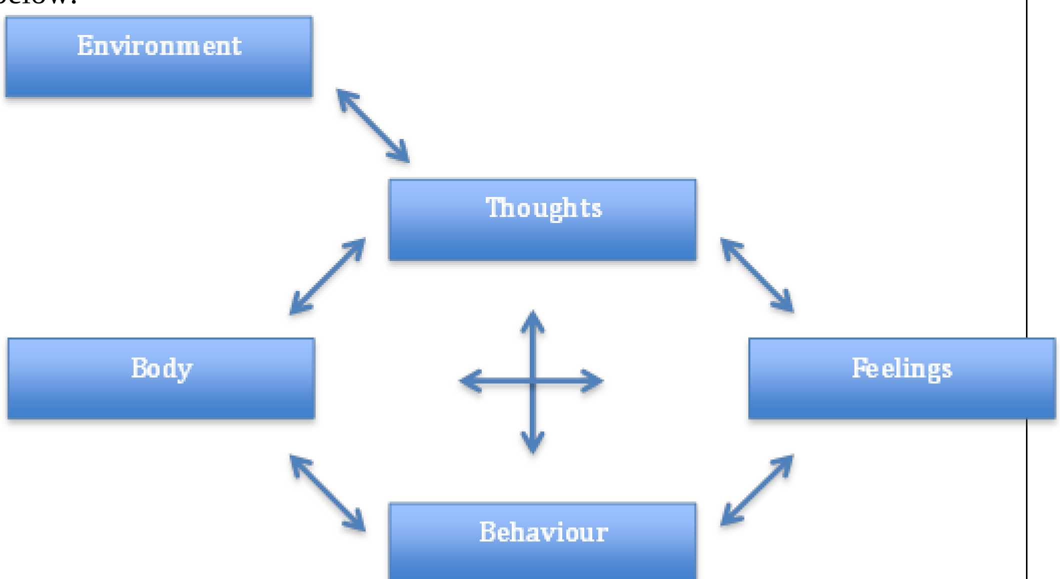


Fig.2 - Factors involved within the Cognitive Behavioural Therapy Model

In terms of clinical relevance CBT has been the subject of many different studies, the majority of which are not within a physiotherapists scope of practice such a substance abuse, child abuse, schizophrenia and personality disorders however as the theory develops and our profession grows it is becoming more clinically relevant. Areas such as musculoskeletal outpatients

can use specially trained therapists to treat fibromyalgia, low back pain and chronic pain.

Here is a link to a list of Cochrane Reviews including the phrase "Cognitive Behavioural Therapy"

Reconceptualising Pain

It is natural to be fearful of pain, after all it is a natural educational tool and vastly unpleasant feeling. When pain persists patients can become fearful of pain and subsequently stop doing things which cause them pain, in main examples this may be movements which is common in osteoarthritis. This fear of pain can become a perpetual cycle towards chronic pain and disability and through the use of education, reconceptualising pain, CBT and the other approaches on this page the cycle can be broken.



Fear Cycle

Adjunct Interventions

Relaxation Therapy

Relaxation is usually used in conjunction with other treatment modalities and can take on a number of forms such as spiritual or non-spiritual meditation, progressive relaxation or muscular contraction and relaxation, even imagery.Typically Relaxation would count as an "Alternative" treatment and recommended to be used along side traditional medical management as opposed to on its own. This may be due to a lack of high quality evidence or unproven theoretical fundamentals underpinning the treatment. The National

Institutes of Health's National Center for Complementary and Alternative Medicine (NCCAM) defines mind–body medicine as “behavioural, psychologic, social and spiritual approaches to medicine not commonly used.”

One way in which relaxation therapy may work is to reduce the effect of stress on the body restoring normal equilibrium within the body systems. At its most basic level, when under stress your body enters a fight or flight mechanism and a number of biochemical changes occur. Heart-rate, blood pressure increases, blood vessels narrow as well as several hormone responses such as adrenaline and cortisol as well as the neurotransmitter serotonin all increasing. These responses are essential in the short term but when these responses (as well as others) prolong and become chronic several damaging consequences occur. These may be fatigue, hypertension, anxiety, suppression of the immune system, reduction of memory and increase in body fat all of which have knock-on consequences elsewhere in the body.

Regardless of the proposed mechanisms of effect, the effect on the patients psyche can be large enough to prove the treatment worthwhile. It is also important to consider the effect of a placebo treatment on pain. However studies have proven relaxation to reduce pain level more often than not in conjunction with another modality. For example Linton & Gotestam investigated the use of relaxation therapy and relaxation therapy and operant techniques and its effect on chronic arthralgic pain. Relaxation was shown to be effective at reducing pain and that the group with operant conditioning were more effective at taking pain medications.

Caution needs to be taken with a large amount of relaxation research as it tends to be older research however there has been some more recent investigation. Spence et al compared the use of relaxation therapy and biofeedback techniques on 48 patients with chronic upper limb pain. Patients were divided into 4 treatment groups (relaxation, biofeedback, combined and 1 control) each receiving treatment twice-a-week for 4 weeks. All 3 treatment groups proved effective initially and at a 3 moth follow up. However the most effective treatment at reducing measures of pain, distress, interference in daily living, depression and anxiety was relaxation therapy (alone). At 6 months there was no difference between treatment groups.

12.9 INDIVIDUAL DIFFERENCES IN REACTIONS TO CONTROL

Differential psychology studies the ways in which individuals differ in their behavior and the processes that underlie it. This is a discipline that develops classifications (taxonomies) of psychological individual differences. This is distinguished from other aspects of psychology in that although psychology is ostensibly a study of individuals, modern psychologists often study groups, or

attempt to discover general psychological processes that apply to all individuals. This particular area of psychology has been named first named “differential psychology” at Breslau University and kept the name as Vidkunn Coucheron Jarl quotes William Stern when he calls this field “a new and fast growing off-shoot of experimental psychology.

For example, in evaluating the effectiveness of a new therapy, the mean performance of the therapy in one treatment group might be compared to the mean effectiveness of a placebo (or a well-known therapy) in a second, control group. In this context, differences between individuals in their reaction to the experimental and control manipulations are actually treated as errors rather than as interesting phenomena to study. This approach is applied because psychological research depends upon statistical controls that are only defined upon groups of people.

Importance of individual differences

Importantly, individuals can also differ not only in their current state, but in the magnitude or even direction of response to a given stimulus. Such phenomena, often explained in terms of inverted-U response curves, place differential psychology at an important location in such endeavours as personalized medicine, in which diagnoses are customised for an individual's response profile.

Methods of research

To study individual differences, psychologists use a variety of methods. Psychophysiological experiments on both humans and other mammals include EEG, PET-scans, MRI,functional MRI, neurochemistry experiments with neurotransmitter and hormonal systems, caffeine and controlled drug challenges. These methods can be used for a search of biomarkers of consistent, biologically-based behavioural patterns (temperament traits and symptoms of psychiatric disorders). Other sets of methods include behavioural experiments, to see how different people behave in similar settings. Behavioural experiments are often used in personality and social psychology, and include lexical and self-report methods where people are asked to complete paper-based and computer-based forms prepared by psychologists.

12.10 TERMINOLOGIES

1.Pain 2. Control 3. Management 4. Placebo 5. Psychological

12.11 MODEL QUESTIONS

1. Explain the Chronic pain control Techniques?
2. Discuss the Placebo effect?
3. Bring out the Psychological control?
4. Discuss the psychological interventions?
5. Discuss the Individual differences in reactions to control?

12.12 REFERENCE BOOKS

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UNIT-XIII PSYCHOPHYSIOLOGICAL DISORDERS

Structure

13.1 Introduction

In psychology, trait theory (also called dispositional theory) is an approach to the study of human personality. Trait theorists are primarily interested in the measurement of traits, which can be defined as habitual patterns of behavior, thought, and emotion. According to this perspective, traits are aspects of personality that are relatively stable over time, differ across individuals (e.g. some people are outgoing whereas others are not), are relatively consistent over situations, and influence behavior. Traits are in contrast to states, which are more transitory dispositions.

In some theories and systems, traits are something a person either has or does not have, but in many others traits are dimensions such as extraversion vs. introversion, with each person rating somewhere along this spectrum.

There are two approaches to define traits: as internal causal properties or as purely descriptive summaries. The internal causal definition states that traits influence our behaviours, leading us to do things in line with that trait. On the

other hand, traits as descriptive summaries are descriptions of our actions that don't try to infer causality.

Meaning

Disposition, temperament, temper, character, personality mean the dominant quality or qualities distinguishing a person or group. disposition implies customary moods and attitude toward the life around one.

List of personality traits

Personality traits

Openness to experience	Composed of two related but separable traits, Openness to Experience and Intellect. Behavioral aspects include having wide interests, and being imaginative and insightful, correlated with activity in the dorsolateral prefrontal cortex. Considered primarily a cognitive trait.
Conscientiousness	Scrupulous, meticulous, principled behavior guided or conforming to one's own conscience. Associated with the dorsolateral prefrontal cortex.
Extraversion	Gregarious, outgoing, sociable, projecting one's personality outward. The opposite of extraversion is introversion. Extraversion has shown to share certain genetic markers with substance abuse. Extraversion is associated with various regions of the prefrontal cortex and the amygdala.
Agreeableness	Refers to a compliant, trusting, empathic, sympathetic, friendly and cooperative nature.
Neuroticism	Identifies people who are prone to psychological distress. Individuals who are high in neuroticism tend to be anxious, depressed, self-conscious, impulsive, vulnerable and display angry hostility. "Neuroticism is the major factor of personality pathology" (Eysenck & Eysenck, 1969). Neuroticism has been linked to serotonin transporter (5-HTT) binding sites in the thalamus: as well as activity in the insular cortex. Neuroticism also predicts the occurrence of more

	negative life experiences.
Honesty-humility	Tendency towards sincerity, modesty, fairness, and greed avoidance. Those who score high on this trait feel little desire to manipulate others or to break the rules for personal gain.
Self-esteem (low)	A "favorable or unfavorable attitude toward the self" (Rosenberg, 1965). An individual's sense of his or her value or worth, or the extent to which a person values, approves of, appreciates, prizes, or likes him or herself" (Blascovich & Tomaka, 1991).
Harm avoidance	A tendency towards shyness, being fearful and uncertain, tendency to worry. Neonatal complications such as preterm birth have been shown to affect harm avoidance. People affected by eating disorders exhibit high levels of harm avoidance. The volume of the left amygdala in girls was correlated to levels of HA, in separate studies HA was correlated with reduced grey matter volume in the orbitofrontal, occipital and parietal regions.
Novelty seeking	Impulsive, exploratory, fickle, excitable, quick-tempered, and extravagant. Associated with addictive behavior.
Sensory processing sensitivity (SPS)	The defining trait of highly sensitive persons, characterized by the increased depth of processing of sensory input that underlies HSPs' greater proclivity to overstimulation, emotional reactivity and empathy, and sensitivity to stimuli.
Perfectionism	"I don't think needing to be perfect is in any way adaptive." (Paul Hewitt, PhD) Socially prescribed perfectionism – "believing that others will value you only if you are perfect." Self-oriented perfectionism – "an internally motivated desire to be perfect."

	Perfectionism is one of the traits associated with obsessional behavior and like obsessionality is also believed to be regulated by the basal ganglia.
Alexithymia	The inability to express emotions. "To have no words for one's inner experience" (Rený J. Muller PhD). In studies done with stroke patients, alexithymia was found to be more prevalent in those who developed lesions in the right hemisphere following a cerebral infarction. There is a positive association with post-traumatic stress disorder (PTSD), childhood abuse and neglect and alexithymia. Utilizing psychometric testing and fMRI, studies showed positive response in the insula, posterior cingulate cortex (PCC), and thalamus.
Rigidity	Inflexibility, difficulty making transitions, adherence to set patterns. Mental rigidity arises out of a deficit of the executive functions. Originally termed frontal lobe syndrome it is also referred to as dysexecutive syndrome and usually occurs as a result of damage to the frontal lobe. This may be due to physical damage, disease (such as Huntington's disease) or a hypoxic or anoxic insult.
Impulsivity	Risk taking, lack of planning, and making up one's mind quickly (Eysenck and Eysenck). A component of disinhibition. Abnormal patterns of impulsivity have been linked to lesions in the right inferior frontal gyrus and in studies done by Antonio Damasio author of Descartes Error, damage to the ventromedial prefrontal cortex has been shown to cause a defect in real-life decision making in individuals with otherwise normal intellect. Those who sustain this type of damage are oblivious to the future consequences of their actions and live in the here and now.
Disinhibition	Behavioral disinhibition is an inability or unwillingness to constrain impulses, it is a key component of executive functioning. Researchers have emphasized poor behavioral inhibition as the central impairment of ADHD. It may be symptomatic of orbitofrontal lobe syndrome, a subtype of frontal lobe syndromewhich may be an acquired disorder as a result of traumatic brain injury, hypoxic ischemic encephalopathy (HIE), anoxic encephalopathy, degenerative diseases such as Parkinson's, bacterial or viral infections such as Lyme disease and neurosyphilis. Disinhibition has been

	consistently associated with substance abuse disorders, obesity, higher BMI, excessive eating, an increased rate of eating, and perceived hunger.
Psychoticism	Psychoticism is a personality pattern typified by aggressiveness and interpersonal hostility, one of four traits in Hans Eysenck's model of personality. High levels of this trait were believed by Eysenck to be linked to increased vulnerability to psychosis such as schizophrenia. He also believed that blood relatives of psychotics would show high levels of this trait, suggesting a genetic basis to the trait.
Obsessionality	Persistent, often unwelcome, and frequently disturbing ideas, thoughts, images or emotions, rumination, often inducing an anxious state. Obsessionality may result as a dysfunction of the basal ganglia.

13.2 CONGENITAL HEART DEFECT (CHD)

A congenital heart defect (CHD), also known as a congenital heart anomaly and congenital heart disease, is a defect in the structure of the heart or great vessels that is present at birth. Signs and symptoms depend on the specific type of defect. Symptoms can vary from none to life-threatening. When present, symptoms may include rapid breathing, bluish skin (cyanosis), poor weight gain, and feeling tired.CHD does not cause chest pain. Most congenital heart defects are not associated with other diseases. A complication of CHD is heart failure.

The cause of a congenital heart defect is often unknown. Risk factors include certain infections during pregnancy such asrubella, use of certain medications or drugs such as alcohol or tobacco, parents being closely related, or poor nutritional status or obesity in the mother. Having a parent with a congenital heart defect is also a risk factor. A number of genetic conditions are associated with heart defects, including Down syndrome, Turner syndrome, and Marfan syndrome. Congenital heart defects are divided into two main groups: cyanotic heart defects and non-cyanotic heart defects, depending on whether the child has the potential to turn bluish in color. The defects may involve the interior walls of the heart, the heart valves, or the large blood vessels that lead to and from the heart.

Congenital heart defects are partly preventable through rubella vaccination, the adding of iodine to salt, and the adding of folic acid to certain food products. Some defects do not need treatment. Others may be effectively treated with catheter based procedures or heart surgery. Occasionally a number of operations may be needed, or a heart transplant may be required. With appropriate treatment, outcomes are generally good, even with complex problems.

Congenital heart defects are the most common birth defect. In 2015, they were present in 48.9 million people globally. They affect between 4 and 75 per 1,000 live births, depending upon how they are diagnosed. In about 6 to 19 per 1,000 they cause a moderate to severe degree of problems. Congenital heart defects are the leading cause of birth defect-related deaths: in 2015, they resulted in 303,300 deaths, down from 366,000 deaths in 1990.

Meaning

Coronary heart disease (CHD) is the most common type of heart disease. It is also called coronary artery disease (CAD). CHD is plaque buildup in your arteries. It's known as hardening of the arteries, too. Arteries carry blood and oxygen to your heart.

Associated conditions

Congenital heart defects are associated with an increased incidence of seven other specific medical conditions, together being called the VACTERL association:

- V — Vertebral anomalies
- A — Anal atresia
- C — Cardiovascular anomalies
- T — Tracheoesophageal fistula
- E — Esophageal atresia
- R — Renal (Kidney) and/or radial anomalies
- L — Limb defects

Ventricular septal defect (VSD), atrial septal defects, and tetralogy of Fallot are the most common congenital heart defects seen in the VACTERL association. Less common defects in the association are truncus arteriosus and transposition of the great arteries.

Genetic

Genetic mutations, often sporadic, represent the largest known cause of congenital heart defects. They are described in the table below.

Genetic lesions	Attributable percent	Examples	Primary genetic testing method
Aneuploidies	5-8%	Survivable autosomal trisomies (chromosomes 13, 18, 21), chromosome X monosomy (Turner syndrome)	Karyotyping
Copy number variants	10-12%	22q11.2 deletion/duplication (velocardiofacial/DiGeorge syndrome), 1q21.1 deletion/duplication, 8p23.1	Array comparative genomic hybridization(

		deletion/duplication, 15q11.2 deletion (Burnside-Butler syndrome)	also known as chromosomal microarray analysis)
Inherited protein-coding single nucleotide variant (SNV) or sma ll insertion/delet ion (indel)	3-5%	Holt-Oram syndrome, Noonan syndrome, Alagille syndrome	Gene panel
De novo protein-coding SNV or indel	~10%	Mutations in genes highly expressed during heart development	Whole exome sequencing

Molecular pathways

The genes regulating the complex developmental sequence have only been partly elucidated. Some genes are associated with specific defects. A number of genes have been associated with cardiac manifestations. Mutations of a heart muscle protein, α-myosin heavy chain (MYH6) are associated with atrial septal defects. Several proteins that interact with MYH6 are also associated with cardiac defects. The transcription factor GATA4 forms a complex with the TBX5 which interacts with MYH6. Another factor, the homeobox(developmental) gene, NKX2-5 also interacts with MYH6. Mutations of all these proteins are associated with both atrial and ventricular septal defects; In addition, NKX2-5 is associated with defects in the electrical conduction of the heart and TBX5 is related to the Holt-Oram syndrome which includes electrical conduction defects and abnormalities of the upper limb. Another T-box gene, TBX1, is involved in velo-cardio-facial syndrome DiGeorge syndrome, the most common deletion which has extensive symptoms including defects of the cardiac outflow tract including tetralogy of Fallot.

Examples of gene products and associated features

	MYH6	**GATA 4**	**NKX2 -5**	**TBX5**	**TBX1**
Locus	14q11.2 -q13	8p23.1-p22	5q34	12q24.1	22q11.2
Syndrome				Holt-Oram	DiGeorge
Atrial septal defects	✔	✔	✔	✔	
Ventricular		✔	✔	✔	

septal defects					
Electrical conduction abnormalities			✔	✔	
Outflow tract abnormalities					✔
Non-cardiac manifestations				Upper limb abnormalities	Small or absent thymus Small or absent parathyroids Facial abnormalities

The notch signaling pathway, a regulatory mechanism for cell growth and differentiation, plays broad roles in several aspects of cardiac development. Notch elements are involved in determination of the right and left sides of the body plan, so the directional folding of the heart tube can be impacted. Notch signaling is involved early in the formation of the endocardial cushions and continues to be active as the develop into the septa and valves. It is also involved in the development of the ventricular wall and the connection of the outflow tract to the great vessels. Mutations in the gene for one of the notch ligands, *Jagged1*, are identified in the majority of examined cases of arteriohepatic dysplasia (Alagille syndrome), characterized by defects of the great vessels (pulmonary artery stenosis), heart (tetralogy of Fallot in 13% of cases), liver, eyes, face, and bones. Though less than 1% of all cases, where no defects are found in the *Jagged1* gene, defects are found in *Notch2* gene. In 10% of cases, no mutation is found in either gene. For another member of the gene family, mutations in the *Notch1* gene are associated with bicuspid aortic valve, a valve with two leaflets instead of three. *Notch1* is also associated with calcification of the aortic valve, the third most common cause of heart disease in adults.

Mutations of a cell regulatory mechanism, the Ras/MAPK pathway are responsible for a variety of syndromes, including Noonan syndrome, LEOPARD syndrome, Costello syndrome and cardiofaciocutaneous syndrome in which there is cardiac involvement. While the conditions listed are known genetic causes, there are likely many other genes which are more subtle. It is known that the risk for congenital heart defects is higher when there is a close relative with one.

Changes at birth

The ductus arteriosus stays open because of circulating factors including prostaglandins. The foramen ovale stays open because of the flow of blood from the right atrium to the left atrium. As the lungs expand, blood flows easily through the lungs and the membranous portion of the foramen ovale (the septum primum) flops over the muscular portion (the septum secundum). If the closure is incomplete, the result is a patent foramen ovale.

The two flaps may fuse, but many adults have a foramen ovale that stays closed only because of the pressure difference between the atria.

Obstructive defects

Obstructive defects occur when heart valves, arteries, or veins are abnormally narrow or blocked. Common defects include pulmonic stenosis, aortic stenosis, and coarctation of the aorta, with other types such as bicuspid aortic valve stenosis and subaortic stenosis being comparatively rare. Any narrowing or blockage can cause heart enlargement orhypertension.

Septal defects

The septum is a wall of tissue which separates the left heart from the right heart. Defects in the interatrial septum or the interventricular septum allow blood to flow from the left side of the heart to the right, reducing the heart's efficiency. Ventricular septal defects are collectively the most common type of CHD, although approximately 30% of adults have a type of atrial septal defect called probe patent foramen ovale.

Cyanotic defects

Cyanotic heart defects are called such because they result in cyanosis, a bluish-grey discoloration of the skin due to a lack of oxygen in the body. Such defects include persistent truncus arteriosus, total anomalous pulmonary venous connection, tetralogy of Fallot, transposition of the great vessels, and tricuspid atresia.

Treatment

CHD may require surgery and medications. Medications include diuretics, which aid the body in eliminating water, salts, and digoxin for strengthening the contraction of the heart. This slows the heartbeat and removes some fluid from tissues. Some defects require surgical procedures to restore circulation back to normal and in some cases, multiple surgeries are needed.

Interventional cardiology now offers patients minimally invasive alternatives to surgery for some patients. The Melody Transcatheter Pulmonary Valve (TPV), approved in Europe in 2006 and in the U.S. in 2010 under a Humanitarian Device Exemption (HDE), is designed to treat congenital heart disease patients with a dysfunctional conduit in their right ventricular outflow tract (RVOT). The RVOT is the connection between the heart and lungs; once blood reaches the lungs, it is enriched with oxygen before being pumped to the rest of the body. Transcatheter pulmonary valve technology provides a less-invasive means to extend the life of a failed RVOT conduit and is designed to allow physicians to deliver a replacement pulmonary valve via a catheter through the patient's blood vessels.

Many people require lifelong specialized cardiac care, first with a pediatric cardiologist and later with an adult congenital cardiologist. There are more than 1.8 million adults living with congenital heart defects.

13.3 ASTHMATICS

Asthma is a common long-term inflammatory disease of the airways of the lungs. It is characterized by variable and recurring symptoms, reversible airflow obstruction, and easily triggered bronchospasms. Symptoms include episodes of wheezing, coughing, chest tightness, and shortness of breath. These may occur a few times a day or a few times per week. Depending on the person, asthma symptoms may become worse at night or with exercise.

Asthma is thought to be caused by a combination of genetic and environmental factors. Environmental factors include exposure to air pollution and allergens. Other potential triggers include medications such as aspirin and beta blockers. Diagnosis is usually based on the pattern of symptoms, response to therapy over time, and spirometry lung function testing. Asthma is classified according to the frequency of symptoms, forced expiratory volume in one second (FEV1), and peak expiratory flow rate. It may also be classified as atopic or non-atopic, where atopy refers to a predisposition toward developing a type 1 hypersensitivity reaction.

There is no cure for asthma. Symptoms can be prevented by avoiding triggers, such as allergens and irritants, and by the use of inhaled corticosteroids. Long-acting beta agonists (LABA) or antileukotriene agents may be used in addition to inhaled corticosteroids if asthma symptoms remain uncontrolled. Treatment of rapidly worsening symptoms is usually with an inhaled short-acting beta-2 agonist such as salbutamol and corticosteroids taken by mouth. In very severe cases, intravenous corticosteroids, magnesium sulfate, and hospitalization may be required.

In 2015, 358 million people globally had asthma, up from 183 million in 1990. It caused about 397,100 deaths in 2015, most of which occurred in the developing world. Asthma often begins in childhood, and the rates have increased significantly since the 1960s. Asthma was recognized as early as Ancient Egypt. The word "asthma" is from the Greek *ásthma*, which means "panting".

Signs and symptoms

Asthma is characterized by recurrent episodes of wheezing, shortness of breath, chest tightness, and coughing. Sputummay be produced from the lung by coughing but is often hard to bring up. During recovery from an asthma attack (exacerbation), it may appear pus-like due to high levels of white blood cells called eosinophils. Symptoms are usually worse at night and in the early morning or in response to exercise or cold air. Some people with asthma rarely experience symptoms, usually in response to triggers, whereas others may react frequently and readily and experience persistent symptoms.

Associated conditions

A number of other health conditions occur more frequently in people with asthma, including gastro-esophageal reflux disease (GERD), rhinosinusitis,

and obstructive sleep apnea. Psychological disorders are also more common, with anxiety disorders occurring in between 16–52% and mood disorders in 14–41%. It is not known whether asthma causes psychological problems or psychological problems lead to asthma. Those with asthma, especially if it is poorly controlled, are at increased risk for radio contrastreactions.

Cavities occur more often in people with asthma. This may be related to the effect of beta 2 agonists decreasing saliva. These medications may also increase the risk ofdental erosions.

Causes

Asthma is caused by a combination of complex and incompletely understood environmental and genetic interactions. These influence both its severity and its responsiveness to treatment. It is believed that the recent increased rates of asthma are due to changing epigenetics (heritable factors other than those related to the DNA sequence) and a changing living environment. Asthma that starts before the age of 12 years old is more likely due to genetic influence, while onset after age 12 is more likely due to environmental influence.

Environmental

Many environmental factors have been associated with asthma's development and exacerbation, including, allergens, air pollution, and other environmental chemicals. Smoking during pregnancy and after delivery is associated with a greater risk of asthma-like symptoms. Low air quality from environmental factors such as traffic pollution or high ozonelevels has been associated with both asthma development and increased asthma severity. Over half of cases in children in the United States occur in areas when air quality is below the EPA standards. Low air quality is more common in low-income and minority communities.

Exposure to indoor volatile organic compounds may be a trigger for asthma; formaldehyde exposure, for example, has a positive association. Phthalates in certain types of PVCare associated with asthma in both children and adults. While exposure to pesticides is linked to the development of asthma, a cause and effect relationship has yet to be established.

The majority of the evidence does not support a causal role between acetaminophen (paracetamol) or antibiotic use and asthma. A 2014 systematic review found that the association between acetaminophen use and asthma disappeared when respiratory infections were taken into account. Acetaminophen use by a mother during pregnancy is also associated with an increased risk of the child developing asthma. Maternal psychological stress during pregnancy is a risk factor for the child to develop asthma.

Asthma is associated with exposure to indoor allergens. Common indoor allergens include dust mites, cockroaches, animal dander (fragments of fur or feathers), and mold. Efforts to decrease dust mites have been found to be ineffective on symptoms in sensitized subjects. Weak evidence suggests that

efforts to decrease mold by repairing buildings may help improve asthma symptoms in adults. Certain viral respiratory infections, such as respiratory syncytial virus and rhinovirus, may increase the risk of developing asthma when acquired as young children. Certain other infections, however, may decrease the risk.

Genetic

CD14-endotoxin interaction based on CD14 SNP C-159T		
Endotoxin levels	**CC genotype**	**TT genotype**
High exposure	Low risk	High risk
Low exposure	High risk	Low risk

Family history is a risk factor for asthma, with many different genes being implicated. If one identical twin is affected, the probability of the other having the disease is approximately 25%.By the end of 2005, 25 genes had been associated with asthma in six or more separate populations, including GSTM1, IL10, CTLA-4, SPINK5, LTC4S, IL4R and ADAM33, among others. Many of these genes are related to the immune system or modulating inflammation. Even among this list of genes supported by highly replicated studies, results have not been consistent among all populations tested. In 2006 over 100genes were associated with asthma in one genetic association study alone;] more continue to be found.

Some genetic variants may only cause asthma when they are combined with specific environmental exposures. An example is a specific single nucleotide polymorphism in the CD14 region and exposure to endotoxin (a bacterial product). Endotoxin exposure can come from several environmental sources including tobacco smoke, dogs, and farms. Risk for asthma, then, is determined by both a person's genetics and the level of endotoxin exposure.

Diagnosis

While asthma is a well-recognized condition, there is not one universal agreed upon definition. It is defined by the Global Initiative for Asthma as "a chronic inflammatory disorder of the airways in which many cells and cellular elements play a role. The chronic inflammation is associated with airway hyper-responsiveness that leads to recurrent episodes of wheezing, breathlessness, chest tightness and coughing particularly at night or in the early morning. These episodes are usually associated with widespread but variable airflow obstruction within the lung that is often reversible either spontaneously or with treatment".

There is currently no precise test for the diagnosis, which is typically based on the pattern of symptoms and response to therapy over time. A diagnosis of asthma should be suspected if there is a history of recurrent wheezing, coughing or difficulty breathing and these symptoms occur or worsen due to exercise, viral infections, allergens or air pollution. Spirometry is then used to confirm the diagnosis. In children under the age of six the diagnosis is more difficult as they are too young for spirometry.

Prevention

The evidence for the effectiveness of measures to prevent the development of asthma is weak. The World Health Organization recommends decreasing risk factors such as tobacco smoke, air pollution, chemical irritants including perfume, and the number of lower respiratory infections. Other efforts that show promise include: limiting smoke exposure in utero, breastfeeding, and increased exposure to daycare or large families, but none are well supported enough to be recommended for this indication.

Early pet exposure may be useful. Results from exposure to pets at other times are inconclusive and it is only recommended that pets be removed from the home if a person has allergic symptoms to said pet.

Dietary restrictions during pregnancy or when breast feeding have not been found to be effective at preventing asthma in children and are not recommended. Reducing or eliminating compounds known to sensitive people from the work place may be effective. It is not clear if annual influenza vaccinations affects the risk of exacerbations. Immunization, however, is recommended by the World Health Organization. Smoking bans are effective in decreasing exacerbations of asthma.

Management

While there is no cure for asthma, symptoms can typically be improved. A specific, customized plan for proactively monitoring and managing symptoms should be created. This plan should include the reduction of exposure to allergens, testing to assess the severity of symptoms, and the usage of and adjustments to medications. The treatment plan should be written down and advise adjustments to treatment according to changes in symptoms.

The most effective treatment for asthma is identifying triggers, such as cigarette smoke, pets, or aspirin, and eliminating exposure to them. If trigger avoidance is insufficient, the use of medication is recommended. Pharmaceutical drugs are selected based on, among other things, the severity of illness and the frequency of symptoms. Specific medications for asthma are broadly classified into fast-acting and long-acting categories.

Bronchodilators are recommended for short-term relief of symptoms. In those with occasional attacks, no other medication is needed. If mild persistent disease is present (more than two attacks a week), low-dose inhaled corticosteroids or alternatively, a leukotriene antagonist or a mast cell stabilizer by mouth is recommended. For those who have daily attacks, a higher dose of inhaled corticosteroids is used. In a moderate or severe exacerbation, corticosteroids by mouth are added to these treatments.

People with asthma have higher rates of anxiety, psychological stress, and depression. This is associated with poorer asthma control. Cognitive behavioral therapymay improve quality of life, asthma control, and anxiety levels in people with asthma.

Improving people's knowledge about asthma and using a written action plan has been identified as an important component of managing asthma. Providing

educational sessions that include information specific to a person's culture is likely effective. More research is necessary to determine if increasing preparedness and knowledge of asthma among school staff and families using home-based and school interventions results in long term improvements in safety for children with asthma. School-based asthma self-management interventions, which attempt to improve knowledge of asthma, its triggers and the importance of regular practitioner review, may reduce hospital admissions and emergency department visits. These interventions may also reduce the number of days children experience asthma symptoms and may lead to small improvements in asthma-related quality of life. More research is necessary to determine if shared-decision-making is helpful for managing adults with asthma or if a personalized asthma action plan is effective and necessary. Some people with asthma use pulse oximeters to monitor their own blood oxygen levels during an asthma attack. However, there is no evidence regarding the use in these instances.

Medications

Medications used to treat asthma are divided into two general classes: quick-relief medications used to treat acute symptoms; and long-term control medications used to prevent further exacerbation. Antibiotics are generally not needed for sudden worsening of symptoms or for treating asthma at any time.

Long–term control

- Corticosteroids are generally considered the most effective treatment available for long-term control. Inhaled forms such asbeclomethasone are usually used except in the case of severe persistent disease, in which oral corticosteroids may be needed. It is usually recommended that inhaled formulations be used once or twice daily, depending on the severity of symptoms.
- Long-acting beta-adrenoceptor agonists (LABA) such as salmeterol and formoterol can improve asthma control, at least in adults, when given in combination with inhaled corticosteroids. In children this benefit is uncertain. When used without steroids they increase the risk of severe side-effects, and with corticosteroids they may slightly increase the risk. Evidence suggests that for children who have persistent asthma, a treatment regime that includes LABA added to inhaled corticosteroids may improve lung function but does not reduce the amount of serious exacerbations. Children who require LABA as part of their asthma treatment may need to go to the hospital more frequently.
- Leukotriene receptor antagonists (anti-leukotriene agents such as montelukast and zafirlukast) may be used in addition to inhaled corticosteroids, typically also in conjunction with a LABA. Evidence is insufficient to support use in acute exacerbations. For adults or adolescents who have persistent asthma that is not controlled very well, the addition of anti-leukotriene agents along with daily inhaled corticosteriods improves lung function and reduces the risk of moderate and severe asthma exacerbations. Anti-leukotriene agents may be effective alone for

adolescents and adults, however there is no clear research suggesting which people with asthma would benefit from anti-leukotriene receptor alone. In those under five years of age, anti-leukotriene agents were the preferred add-on therapy after inhaled corticosteroids by the British Thoracic Society in 2009. A 2013 Cochrane systematic review concluded that anti-leukotriene agents appear to be of little benefit when added to inhaled steroids for treating children. A similar class of drugs, 5-LOX inhibitors, may be used as an alternative in the chronic treatment of mild to moderate asthma among older children and adults. As of 2013 there is one medication in this family known as zileuton.

- Intravenous administration of the drug aminophylline does not provide an improvement in bronchodilation when compared to standard inhaled beta-2 agonist treatment. Aminophylline treatment is associated with more adverse effects compared to inhaled beta-2 agonist treatment.
- Mast cell stabilizers (such as cromolyn sodium) are another non-preferred alternative to corticosteroids.
- For children with asthma which is well-controlled on combination therapy of inhaled corticosteroids (ICS) and long-acting $beta_2$-agonists (LABA), the benefits and harms of stopping LABA and stepping down to ICS-only therapy are uncertain. In adults who have stable asthma while they are taking a combination of LABA and inhaled corticosteroids (ICS), stopping LABA may increase the risk of asthma exacerbations that require treatment with corticosteroids by mouth. Stopping LABA probably makes little or no important difference to asthma control or asthma-related quality of life. Whether or not stopping LABA increases the risk of serious adverse events or exacerbations requiring an emergency department visit or hospitalisation is uncertain.
- Anticholinergic medications such as ipratropium bromide have not been shown to be beneficial for treating chronic asthma in children over 2 years old, but is not suggested for routine treatment of chronic asthma in adults.
- There is no strong evidence to recommend chloroquine medication as a replacement for taking corticosteroids by mouth (for those who are not able to tolerate inhaled steroids). Methotrexate is not suggested as a replacement for taking corticosteriods by mouth ("steroid sparing") due to the adverse effects associated with taking methotrexate and the minimal relief provided for asthma symptoms

13.4 ALLERGY

Allergies, also known as allergic diseases, are a number of conditions caused by hypersensitivity of the immune system to typically harmless substances in the environment. These diseases include hay fever, food allergies, atopic dermatitis,allergic asthma, and anaphylaxis. Symptoms may include red eyes, an itchy rash, sneezing, a runny nose, shortness of breath, or swelling. Food intolerances and food poisoning are separate conditions.

Common allergens include pollen and certain foods. Metals and other substances may also cause problems. Food,insect stings, and medications are common causes of severe reactions. Their development is due to both genetic

and environmental factors. The underlying mechanism involves immunoglobulin E antibodies (IgE), part of the body's immune system, binding to an allergen and then to a receptor on mast cells or basophils where it triggers the release of inflammatory chemicals such as histamine. Diagnosis is typically based on a person's medical history. Further testing of the skin or blood may be useful in certain cases. Positive tests, however, may not mean there is a significant allergy to the substance in question.

Early exposure to potential allergens may be protective. Treatments for allergies include the avoidance of known allergens and the use of medications such as steroids and antihistamines. In severe reactions injectable adrenaline (epinephrine) is recommended. Allergen immunotherapy, which gradually exposes people to larger and larger amounts of allergen, is useful for some types of allergies such as hay fever and reactions to insect bites. Its use in food allergies is unclear.

Allergies are common.] In the developed world, about 20% of people are affected by allergic rhinitis, about 6% of people have at least one food allergy, and about 20% have atopic dermatitis at some point in time. Depending on the country about 1–18% of people have asthma. Anaphylaxis occurs in between 0.05–2% of people. Rates of many allergic diseases appear to be increasing. The word "allergy" was first used by Clemens von Pirquet in 1906.

Signs and symptoms

Affected organ	Common signs and symptoms
Nose	Swelling of the nasal mucosa (allergic rhinitis) runny nose, sneezing
Sinuses	Allergic sinusitis
Eyes	Redness and itching of the conjunctiva (allergic conjunctivitis, watery)
Airways	Sneezing, coughing, bronchoconstriction, wheezing and dyspnea, sometimes outright attacks of asthma, in severe cases the airway constricts due to swelling known as laryngeal edema
Ears	Feeling of fullness, possibly pain, and impaired hearing due to the lack ofeustachian tube drainage.
Skin	Rashes, such as eczema and hives (urticaria)

Gastrointestinal tract	Abdominal pain, bloating, vomiting, diarrhea

Many allergens such as dust or pollen are airborne particles. In these cases, symptoms arise in areas in contact with air, such as eyes, nose, and lungs. For instance, allergic rhinitis, also known as hay fever, causes irritation of the nose, sneezing, itching, and redness of the eyes. Inhaled allergens can also lead to increased production of mucus in the lungs, shortness of breath, coughing, and wheezing.

Aside from these ambient allergens, allergic reactions can result from foods, insect stings, and reactions to medications like aspirin and antibiotics such as penicillin. Symptoms of food allergy include abdominal pain, bloating, vomiting, diarrhea, itchyskin, and swelling of the skin during hives. Food allergies rarely cause respiratory(asthmatic) reactions, or rhinitis. Insect stings, food, antibiotics, and certain medicines may produce a systemic allergic response that is also called anaphylaxis; multiple organ systems can be affected, including the digestive system, the respiratory system, and the circulatory system. Depending on the rate of severity, anaphylaxis can include skin reactions, bronchoconstriction, swelling, low blood pressure, coma, and death. This type of reaction can be triggered suddenly, or the onset can be delayed. The nature of anaphylaxis is such that the reaction can seem to be subsiding, but may recur throughout a period of time.

Skin

Substances that come into contact with the skin, such as latex, are also common causes of allergic reactions, known as contact dermatitis or eczema. Skin allergies frequently cause rashes, or swelling and inflammation within the skin, in what is known as a "weal and flare" reaction characteristic of hives and angioedema.With insect stings a large local reaction may occur (an area of skin redness greater than 10 cm in size). It can last one to two days. This reaction may also occur after immunotherapy.

Cause

Risk factors for allergy can be placed in two general categories, namely host and environmental factors. Host factors include heredity, sex, race, and age, with heredity being by far the most significant. However, there have been recent increases in the incidence of allergic disorders that cannot be explained by genetic factors alone. Four major environmental candidates are alterations in exposure to infectious diseases during early childhood, environmental pollution, allergen levels, and dietary changes.

Genetics

Allergic diseases are strongly familial: identical twins are likely to have the same allergic diseases about 70% of the time; the same allergy occurs about 40% of the time in non-identical twins. Allergic parents are more likely to

have allergic children, and those children's allergies are likely to be more severe than those in children of non-allergic parents. Some allergies, however, are not consistent along genealogies; parents who are allergic to peanuts may have children who are allergic to ragweed. It seems that the likelihood of developing allergies is inherited and related to an irregularity in the immune system, but the specific allergen is not.

The risk of allergic sensitization and the development of allergies varies with age, with young children most at risk. Several studies have shown that IgE levels are highest in childhood and fall rapidly between the ages of 10 and 30 years. The peak prevalence of hay fever is highest in children and young adults and the incidence of asthma is highest in children under 10.

Overall, boys have a higher risk of developing allergies than girls, although for some diseases, namely asthma in young adults, females are more likely to be affected. These differences between the sexes tend to decrease in adulthood.

Ethnicity may play a role in some allergies; however, racial factors have been difficult to separate from environmental influences and changes due to migration. It has been suggested that different genetic loci are responsible for asthma, to be specific, in people of European, Hispanic, Asian, and African origins.

Diagnosis

Effective management of allergic diseases relies on the ability to make an accurate diagnosis. Allergy testing can help confirm or rule out allergies. Correct diagnosis, counseling, and avoidance advice based on valid allergy test results reduces the incidence of symptoms and need for medications, and improves quality of life. To assess the presence of allergen-specific IgE antibodies, two different methods can be used: a skin prick test, or an allergy blood test. Both methods are recommended, and they have similar diagnostic value.

Skin prick tests and blood tests are equally cost-effective, and health economic evidence shows that both tests were cost-effective compared with no test. Also, early and more accurate diagnoses save cost due to reduced consultations, referrals to secondary care, misdiagnosis, and emergency admissions.

Allergy undergoes dynamic changes over time. Regular allergy testing of relevant allergens provides information on if and how patient management can be changed, in order to improve health and quality of life. Annual testing is often the practice for determining whether allergy to milk, egg, soy, and wheat have been outgrown, and the testing interval is extended to 2–3 years for allergy to peanut, tree nuts, fish, and crustacean shellfish. Results of follow-up testing can guide decision-making regarding whether and when it is safe to introduce or re-introduce allergenic food into the diet.

Skin prick testing

Skin testing is also known as "puncture testing" and "prick testing" due to the series of tiny punctures or pricks made into the patient's skin. Small amounts

of suspected allergens and/or theirextracts (*e.g.*, pollen, grass, mite proteins, peanut extract) are introduced to sites on the skin marked with pen or dye (the ink/dye should be carefully selected, lest it cause an allergic response itself). A small plastic or metal device is used to puncture or prick the skin. Sometimes, the allergens are injected "intradermally" into the patient's skin, with a needle and syringe. Common areas for testing include the inside forearm and the back.

If the patient is allergic to the substance, then a visible inflammatory reaction will usually occur within 30 minutes. This response will range from slight reddening of the skin to a full-blown hive (called "wheal and flare") in more sensitive patients similar to a mosquito bite. Interpretation of the results of the skin prick test is normally done by allergists on a scale of severity, with +/− meaning borderline reactivity, and 4+ being a large reaction. Increasingly, allergists are measuring and recording the diameter of the wheal and flare reaction. Interpretation by well-trained allergists is often guided by relevant literature. Some patients may believe they have determined their own allergic sensitivity from observation, but a skin test has been shown to be much better than patient observation to detect allergy.

If a serious life-threatening anaphylactic reaction has brought a patient in for evaluation, some allergists will prefer an initial blood test prior to performing the skin prick test. Skin tests may not be an option if the patient has widespread skin disease, or has taken antihistamines in the last several days.

Patch testing

Patch testing is a method used to determine if a specific substance causes allergic inflammation of the skin. It tests for delayed reactions. It is used to help ascertain the cause of skin contact allergy, or contact dermatitis. Adhesive patches, usually treated with a number of common allergic chemicals or skin sensitizers, are applied to the back. The skin is then examined for possible local reactions at least twice, usually at 48 hours after application of the patch, and again two or three days later.

Blood testing

An allergy blood test is quick and simple, and can be ordered by a licensed health care provider (*e.g.*, an allergy specialist) or general practitioner. Unlike skin-prick testing, a blood test can be performed irrespective of age, skin condition, medication, symptom, disease activity, and pregnancy. Adults and children of any age can get an allergy blood test. For babies and very young children, a single needle stick for allergy blood testing is often more gentle than several skin pricks.

An allergy blood test is available through most laboratories. A sample of the patient's blood is sent to a laboratory for analysis, and the results are sent back a few days later. Multiple allergens can be detected with a single blood sample. Allergy blood tests are very safe, since the person is not exposed to any allergens during the testing procedure.

The test measures the concentration of specific IgE antibodies in the blood. Quantitative IgE test results increase the possibility of ranking how different substances may affect symptoms. A rule of thumb is that the higher the IgE antibody value, the greater the likelihood of symptoms. Allergens found at low levels that today do not result in symptoms can not help predict future symptom development. The quantitative allergy blood result can help determine what a patient is allergic to, help predict and follow the disease development, estimate the risk of a severe reaction, and explain cross-reactivity.

A low total IgE level is not adequate to rule out sensitization to commonly inhaled allergens. Statistical methods, such as ROC curves, predictive value calculations, and likelihood ratios have been used to examine the relationship of various testing methods to each other. These methods have shown that patients with a high total IgE have a high probability of allergic sensitization, but further investigation with allergy tests for specific IgE antibodies for a carefully chosen of allergens is often warranted.

Laboratory methods to measure specific IgE antibodies for allergy testing include enzyme-linked immunosorbent assay (ELISA, or EIA), radioallergosorbent test (RAST)[88] and fluorescent enzyme immunoassay (FEIA).

Other testing

Challenge testing: Challenge testing is when small amounts of a suspected allergen are introduced to the body orally, through inhalation, or via other routes. Except for testing food and medication allergies, challenges are rarely performed. When this type of testing is chosen, it must be closely supervised by an allergist.

Elimination/challenge tests: This testing method is used most often with foods or medicines. A patient with a suspected allergen is instructed to modify his diet to totally avoid that allergen for a set time. If the patient experiences significant improvement, he may then be "challenged" by reintroducing the allergen, to see if symptoms are reproduced.

Unreliable tests: There are other types of allergy testing methods that are unreliable, including applied kinesiology (allergy testing through muscle relaxation), cytotoxicity testing, urine autoinjection, skin titration (Rinkel method), and provocative and neutralization (subcutaneous) testing or sublingual provocation.[90]

Prevention

Giving peanut products early may decrease the risk allergies while only breastfeeding during at least the first few months of life may decrease the risk of dermatitis. There is no good evidence that a mother's diet during pregnancy or breastfeeding affects the risk. Nor is there evidence that delayed introduction of certain foods is useful. Early exposure to potential allergens may actually be protective.

Fish oil supplementation during pregnancy is associated with a lower risk. Probiotic supplements during pregnancy or infancy may help to prevent atopic dermatitis.

Management

Management of allergies typically involves avoiding what triggers the allergy and medications to improve the symptoms. Allergen immunotherapy may be useful for some types of allergies.

Medication

Several medications may be used to block the action of allergic mediators, or to prevent activation of cells and degranulation processes. These include antihistamines,glucocorticoids, epinephrine (adrenaline), mast cell stabilizers, and antileukotriene agents are common treatments of allergic diseases. Anti-cholinergics, decongestants, and other compounds thought to impair eosinophil chemotaxis, are also commonly used. Although rare, the severity of anaphylaxis often requires epinephrine injection, and where medical care is unavailable, a device known as an epinephrine autoinjector may be used.

13.5 ECZEMA

Atopic eczema (atopic dermatitis) is the most common form of eczema, a condition that causes the skin to become itchy, dry and cracked. Atopic eczema is more common in children, often developing before their first birthday. But it may also develop for the first time in adults.It's usually a long-term (chronic) condition, although it can improve significantly, or even clear completely, in some children as they get older.

Eczema is a condition where patches of skin become inflamed, itchy, red, cracked, and rough. Blisters may sometimes occur. Different stages and types of eczema affect 31.6 percent of people in the United States. The word “eczema” is also used specifically to talk about atopic dermatitis, the most common type of eczema.

Symptoms of atopic eczema

Atopic eczema causes the skin to become itchy, dry, cracked and sore.Some people only have small patches of dry skin, but others may experience widespread inflamed skin all over the body.Inflamed skin can become red on lighter skin, and darker brown, purple or grey on darker skin. This can also be more difficult to see on darker skin.Although atopic eczema can affect any part of the body, it most often affects the hands, insides of the elbows, backs of the knees and the face and scalp in children.People with atopic eczema usually have periods when symptoms are less noticeable, as well as periods when symptoms become more severe (flare-ups).

When to seek medical advice

See a GP if you have symptoms of atopic eczema. They'll usually be able to diagnose atopic eczema by looking at your skin and asking questions, such as:

- whether the rash is itchy and where it appears
- when the symptoms first began
- whether it comes and goes over time
- whether there's a history of atopic eczema in your family
- whether you have any other conditions, such as allergies or asthma
- whether something in your diet or lifestyle may be contributing to your symptoms

Typically, to be diagnosed with atopic eczema you should have had an itchy skin condition in the last 12 months and 3 or more of the following:

- visibly irritated red skin in the creases of your skin – such as the insides of your elbows or behind your knees (or on the cheeks, outsides of elbows, or fronts of the knees in children aged 18 months or under) at the time of examination by a health professional
- a history of skin irritation occurring in the same areas mentioned above
- generally dry skin in the last 12 months
- a history of asthma or hay fever – children under 4 must have an immediate relative, such as a parent, brother or sister, who has 1 of these conditions
- the condition started before the age of 2 (this does not apply to children under the age of 4)

Causes of atopic eczema

The exact cause of atopic eczema is unknown, but it's clear it is not down to one single thing.

Atopic eczema often occurs in people who get allergies. "Atopic" means sensitivity to allergens.

It can run in families, and often develops alongside other conditions, such as asthma and hay fever.

The symptoms of atopic eczema often have certain triggers, such as soaps, detergents, stress and the weather.

Sometimes food allergies can play a part, especially in young children with severe eczema.

You may be asked to keep a food diary to try to determine whether a specific food makes your symptoms worse.

Allergy tests are not usually needed, although they're sometimes helpful in identifying whether a food allergy may be triggering symptoms.

Treating atopic eczema

Treatment for atopic eczema can help to relieve the symptoms and many cases improve over time.

But there's currently no cure and severe eczema often has a significant impact on daily life, which may be difficult to cope with physically and mentally.

There's also an increased risk of skin infections.

Many different treatments can be used to control symptoms and manage eczema, including:

- self-care techniques, such as reducing scratching and avoiding triggers
- emollients (moisturising treatments) – used on a daily basis for dry skin
- topical corticosteroids – used to reduce swelling, redness and itching during flare-ups

Other types of eczema

Eczema is the name for a group of skin conditions that cause dry, irritated skin.

Other types of eczema include:

- discoid eczema – a type of eczema that occurs in circular or oval patches on the skin
- contact dermatitis – a type of eczema that occurs when the body comes into contact with a particular substance
- varicose eczema – a type of eczema that most often affects the lower legs and is caused by problems with the flow of blood through the leg veins
- seborrhoeic eczema – a type of eczema where red, scaly patches develop on the sides of the nose, eyebrows, ears and scalp
- dyshidrotic eczema (pompholyx) – a type of eczema that causes tiny blisters to erupt across the palms of the hands

13.6 RHEUMATOID ARTHRITIS

Rheumatoid arthritis (RA) is a long-term autoimmune disorder that primarily affects joints. It typically results in warm, swollen, and painful joints. Pain and stiffness often worsen following rest. Most commonly, the wrist and hands are involved, with the same joints typically involved on both sides of the body. The disease may also affect other parts of the body. This may result in a low red blood cell count, inflammation around the lungs, and inflammation around the heart. Fever and low energy may also be present. Often, symptoms come on gradually over weeks to months.

While the cause of rheumatoid arthritis is not clear, it is believed to involve a combination of genetic and environmental factors. The underlying mechanism involves the body's immune system attacking the joints. This results in inflammation and thickening of the joint capsule. It also affects the underlying bone and cartilage.The diagnosis is made mostly on the basis of a person's signs and symptoms. X-rays and laboratory testing may support a diagnosis or exclude other diseases with similar symptoms. Other diseases that

may present similarly include systemic lupus erythematosus, psoriatic arthritis, and fibromyalgia among others.

The goals of treatment are to reduce pain, decrease inflammation, and improve a person's overall functioning. This may be helped by balancing rest and exercise, the use of splints and braces, or the use of assistive devices. Pain medications,steroids, and NSAIDs are frequently used to help with symptoms. Disease-modifying antirheumatic drugs (DMARDs), such ashydroxychloroquine and methotrexate, may be used to try to slow the progression of disease. Biological DMARDs may be used when disease does not respond to other treatments. However, they may have a greater rate of adverse effects. Surgery to repair, replace, or fuse joints may help in certain situations. Most alternative medicine treatments are not supported by evidence.

RA affects about 24.5 million people as of 2015. This is between 0.5 and 1% of adults in the developed world with 5 and 50 per 100,000 people newly developing the condition each year. Onset is most frequent during middle age and women are affected 2.5 times as frequently as men. In 2013, it resulted in 38,000 deaths up from 28,000 deaths in 1990. The first recognized description of RA was made in 1800 by Dr. Augustin Jacob Landré-Beauvais (1772–1840) of Paris. The term*rheumatoid arthritis* is based on the Greek for watery and inflamed joints.

Inflammation of one or more joints, causing pain and stiffness that can worsen with age.Different types of arthritis exist, each with different causes including wear and tear, infections and underlying diseases.Symptoms include pain, swelling, reduced range of motion and stiffness.Medication, physiotherapy or sometimes surgery helps reduce symptoms and improve quality of life.

Signs and symptoms

RA primarily affects joints, but it also affects other organs in more than 15–25% of cases. Associated problems include cardiovascular disease, osteoporosis, interstitial lung disease, infection, cancer, feeling tired, depression, mental difficulties, and trouble working.

Skin

The rheumatoid nodule, which is sometimes in the skin, is the most common non-joint feature and occurs in 30% of people who have RA. It is a type of inflammatory reaction known to pathologists as a "necrotizing granuloma". The initial pathologic process in nodule formation is unknown but may be essentially the same as the synovitis, since similar structural features occur in both. The nodule has a central area of fibrinoid necrosis that may be fissured and which corresponds to the fibrin-rich necrotic material found in and around an affected synovial space. Surrounding the necrosis is a layer of palisading macrophages and fibroblasts, corresponding to the intimal layer in synovium and a cuff of connective tissue containing clusters of lymphocytes and plasma cells, corresponding to the subintimal zone in synovitis. The typical rheumatoid nodule may be a few millimetres to a few centimetres in diameter and is usually found over bony prominences, such as

the elbow, the heel, theknuckles, or other areas that sustain repeated mechanical stress. Nodules are associated with a positive RF (rheumatoid factor) titer, ACPA, and severe erosive arthritis. Rarely, these can occur in internal organs or at diverse sites on the body.

Several forms of vasculitis occur in RA, but are mostly seen with long-standing and untreated disease. The most common presentation is due to involvement of small- and medium-sized vessels. Rheumatoid vasculitis can thus commonly present with skin ulceration and vasculitic nerve infarction known as mononeuritis multiplex.

Other, rather rare, skin associated symptoms include pyoderma gangrenosum, Sweet's syndrome, drug reactions, erythema nodosum, lobe panniculitis, atrophy of finger skin,palmar erythema, and skin fragility (often worsened by corticosteroid use).

Diffuse alopecia areata (Diffuse AA) occurs more commonly in people with rheumatoid arthritis. RA is also seen more often in those with relatives who have AA.

Lungs

Lung fibrosis is a recognized complication of rheumatoid arthritis. It is also a rare but well-recognized consequence of therapy (for example with methotrexate and leflunomide).Caplan's syndrome describes lung nodules in individuals with RA and additional exposure to coal dust. Exudative pleural effusions are also associated with RA.

Heart and blood vessels

People with RA are more prone to atherosclerosis, and risk of myocardial infarction (heart attack) and stroke is markedly increased. Other possible complications that may arise include: pericarditis, endocarditis, left ventricular failure, valvulitis and fibrosis. Many people with RA do not experience the same chest pain that others feel when they have angina or myocardial infarction. To reduce cardiovascular risk, it is crucial to maintain optimal control of the inflammation caused by RA (which may be involved in causing the cardiovascular risk), and to use exercise and medications appropriately to reduce other cardiovascular risk factors such as blood lipids and blood pressure. Doctors who treat people with RA should be sensitive to cardiovascular risk when prescribing anti-inflammatory medications, and may want to consider prescribing routine use of low doses of aspirin if the gastrointestinal effects are tolerable.

Blood

Anemia is by far the most common abnormality of the blood cells which can be caused by a variety of mechanisms. The chronic inflammation caused by RA leads to raisedhepcidin levels, leading to anemia of chronic disease where iron is poorly absorbed and also sequestered into macrophages. The red cells are of normal size and color (normocytic and normochromic). A low white blood cell count usually only occurs in people with Felty's syndrome with an

enlarged liver and spleen. The mechanism of neutropenia is complex. An increased platelet count occurs when inflammation is uncontrolled.

Other

Kidneys

Renal amyloidosis can occur as a consequence of untreated chronic inflammation. Treatment with penicillamine and gold salts are recognized causes of membranous nephropathy.

Eyes

The eye can be directly affected in the form of episcleritis or scleritis, which when severe can very rarely progress to perforating scleromalacia. Rather more common is the indirect effect of keratoconjunctivitis sicca, which is a dryness of eyes and mouth caused by lymphocyte infiltration of lacrimal and salivary glands. When severe, dryness of the cornea can lead to keratitis and loss of vision as well as being painful. Preventive treatment of severe dryness with measures such as nasolacrimal duct blockage is important.[*citation needed*]

Liver

Liver problems in people with rheumatoid arthritis may be due to the underlying disease process or as a result of the medications used to treat the disease. A coexisting autoimmune liver disease, such as primary biliary cirrhosis or autoimmune hepatitis may also cause problems.

Neurological

Peripheral neuropathy and mononeuritis multiplex may occur. The most common problem is carpal tunnel syndrome caused by compression of the median nerve by swelling around the wrist. Rheumatoid disease of the spine can lead to myelopathy. Atlanto-axial subluxation can occur, owing to erosion of the odontoid process and/or transverse ligaments in the cervical spine's connection to the skull. Such an erosion (>3mm) can give rise to vertebrae slipping over one another and compressing the spinal cord. Clumsiness is initially experienced, but without due care, this can progress to quadriplegia or even death.

Constitutional symptoms

Constitutional symptoms including fatigue, low grade fever, malaise, morning stiffness, loss of appetite and loss of weight are common systemic manifestations seen in people with active RA.

Bones

Local osteoporosis occurs in RA around inflamed joints. It is postulated to be partially caused by inflammatory cytokines. More general osteoporosis is probably contributed to by immobility, systemic cytokine effects, local cytokine release in bone marrow and corticosteroid therapy.

NOTES

Cancer

The incidence of lymphoma is increased, although it is uncommon and associated with the chronic inflammation, not the treatment of RA. The risk of non-melanoma skin cancer is increased in people with RA compared to the general population, an association possibly due to the use of immunosuppression agents for treating RA.

Teeth

Periodontitis and tooth loss are common in people with rheumatoid arthritis.

Genetic

A family history of RA increases the risk around three to five times; as of 2016 it was estimated that genetics may account for between 40 and 65% of cases of seropositive RA, but only around 20% for seronegative RA. RA is strongly associated with genes of the inherited tissue type major histocompatibility complex (MHC) antigen HLA-DR4 is the major genetic factor implicated – the relative importance varies across ethnic groups. Genome-wide association studies examining single-nucleotide polymorphisms have found around one hundred genes associated with RA risk, with most of them involving the HLA system (particularly HLA-DRB1) which controls recognition of self versus nonself molecules; other mutations affecting co-stimulatory immune pathways, for example CD28 and CD40, cytokine signaling, lymphocyte receptor activation threshold (e.g., PTPN22), and innate immune activation appear to have less influence than HLA mutations.

Environmental

There are established epigenetic and environmental risk factors for RA. Smoking is an established risk factor for RA in Caucasian populations, increasing the risk three times compared to non-smokers, particularly in men, heavy smokers, and those who are rheumatoid factor positive. Modest alcohol consumption may be protective.

Silica exposure has been linked to RA.

Prevention

There is no known prevention for the condition other than the reduction of risk factors.

Management

There is no cure for RA, but treatments can improve symptoms and slow the progress of the disease. Disease-modifying treatment has the best results when it is started early and aggressively.

The goals of treatment are to minimize symptoms such as pain and swelling, to prevent bone deformity (for example, bone erosions visible in X-rays), and to maintain day-to-day functioning. This is primarily addressed with disease-modifying antirheumatic

drugs (DMARDs); dosed physical activity; analgesics and physical therapy may be used to help manage pain. RA should generally be treated with at least one specific anti-rheumatic medication. The use of benzodiazepines (such as diazepam) to treat the pain is not recommended as it does not appear to help and is associated with risks.

13.7 PEPTIC ULCER

Peptic ulcer disease (PUD) is a break in the inner lining of the stomach, the first part of the small intestine, or sometimes the lower esophagus. An ulcer in the stomach is called a gastric ulcer, while one in the first part of the intestines is aduodenal ulcer. The most common symptoms of a duodenal ulcer are waking at night with upper abdominal pain and upper abdominal pain that improves with eating. With a gastric ulcer, the pain may worsen with eating. The pain is often described as a burning or dull ache. Other symptoms include belching, vomiting, weight loss, or poor appetite. About a third of older people have no symptoms. Complications may include bleeding, perforation, and blockage of the stomach. Bleeding occurs in as many as 15% of cases.

Common causes include the bacteria *Helicobacter pylori* and non-steroidal anti-inflammatory drugs (NSAIDs).[1] Other, less common causes include tobacco smoking, stress due to serious illness, Behcet disease, Zollinger-Ellison syndrome, Crohn disease, and liver cirrhosis. Older people are more sensitive to the ulcer-causing effects of NSAIDs. The diagnosis is typically suspected due to the presenting symptoms with confirmation by either endoscopy or barium swallow. *H. pylori* can be diagnosed by testing the blood for antibodies, a urea breath test, testing the stool for signs of the bacteria, or a biopsy of the stomach. Other conditions that produce similar symptoms include stomach cancer, coronary heart disease, and inflammation of the stomach lining or gallbladder inflammation.

Diet does not play an important role in either causing or preventing ulcers. Treatment includes stopping smoking, stopping use of NSAIDs, stopping alcohol, and taking medications to decrease stomach acid. The medication used to decrease acid is usually either a proton pump inhibitor (PPI) or an H2 blocker, with four weeks of treatment initially recommended.[1] Ulcers due to *H. pylori* are treated with a combination of medications, such as amoxicillin, clarithromycin, and a PPI. Antibiotic resistanceis increasing and thus treatment may not always be effective. Bleeding ulcers may be treated by endoscopy, with open surgery typically only used in cases in which it is not successful.

Peptic ulcers are present in around 4% of the population. New ulcers were found in around 87.4 million people worldwide during 2015. About 10% of people develop a peptic ulcer at some point in their life. Peptic ulcers resulted in 267,500 deaths in 2015, down from 327,000 in 1990. The first description of a perforated peptic ulcer was in 1670, in PrincessHenrietta of England. *H. pylori* was first identified as causing peptic ulcers by Barry

Marshall and Robin Warren in the late 20th century, a discovery for which they received the Nobel Prize in 2005.

Meaning

Peptic ulcers are sores that develop in the lining of the stomach, lower esophagus, or small intestine. They're usually formed as a result of inflammation caused by the bacteria H. pylori, as well as from erosion from stomach acids. Peptic ulcers are a fairly common health problem.

Signs and symptoms

Signs and symptoms of a peptic ulcer can include one or more of the following:

- abdominal pain, classically epigastric, strongly correlated with mealtimes. In case of duodenal ulcers, the pain appears about three hours after taking a meal and wakes the person from sleep;
- bloating and abdominal fullness;
- waterbrash (a rush of saliva after an episode of regurgitation to dilute the acid in esophagus, although this is more associated with gastroesophageal reflux disease);
- nausea and copious vomiting;
- loss of appetite and weight loss, in gastric ulcer;
- weight gain, in duodenal ulcer, as the pain is relieved by eating;
- hematemesis (vomiting of blood); this can occur due to bleeding directly from a gastric ulcer or from damage to the esophagus from severe/continuing vomiting.
- melena (tarry, foul-smelling feces due to presence of oxidized iron from hemoglobin);
- rarely, an ulcer can lead to a gastric or duodenal perforation, which leads to acute peritonitis and extreme, stabbing pain, and requires immediate surgery.

A history of heartburn or gastroesophageal reflux disease (GERD) and use of certain medications can raise the suspicion for peptic ulcer. Medicines associated with peptic ulcer include NSAIDs (non-steroid anti-inflammatory drugs) that inhibit cyclooxygenase and mostglucocorticoids (e.g., dexamethasone and prednisolone).

In people over the age of 45 with more than two weeks of the above symptoms, the odds for peptic ulceration are high enough to warrant rapid investigation by esophagogastroduodenoscopy.

The timing of symptoms in relation to the meal may differentiate between gastric and duodenal ulcers. A gastric ulcer would give epigastric pain during the meal, associated with nausea and vomiting, as gastric acid production is increased as food enters the stomach. Pain in duodenal ulcers would be aggravated by hunger and relieved by a meal and is associated with night pain.

Also, the symptoms of peptic ulcers may vary with the location of the ulcer and the person's age. Furthermore, typical ulcers tend to heal and recur, and as a result the pain may occur for few days and weeks and then wane or disappear. Usually, children and the elderly do not develop any symptoms unless complications have arisen.

A burning or gnawing feeling in the stomach area lasting between 30 minutes and 3 hours commonly accompanies ulcers. This pain can be misinterpreted as hunger, indigestion, or heartburn. Pain is usually caused by the ulcer, but it may be aggravated by the stomach acid when it comes into contact with the ulcerated area. The pain caused by peptic ulcers can be felt anywhere from the navel up to the sternum, it may last from few minutes to several hours, and it may be worse when the stomach is empty. Also, sometimes the pain may flare at night, and it can commonly be temporarily relieved by eating foods that buffer stomach acid or by taking anti-acid medication. However, peptic ulcer disease symptoms may be different for every sufferer.

Complications

- Gastrointestinal bleeding is the most common complication. Sudden large bleeding can be life-threatening. It is associated with 5% to 10% death rate.
- Perforation (a hole in the wall of the gastrointestinal tract) following a gastric ulcer often leads to catastrophic consequences if left untreated. Erosion of the gastrointestinal wall by the ulcer leads to spillage of the stomach or intestinal contents into the abdominal cavity, leading to an acute chemical peritonitis. The first sign is often sudden intense abdominal pain, as seen in Valentino's syndrome. Posterior gastric wall perforation may lead to bleeding due to the involvement of gastroduodenal artery that lies posterior to the first part of the duodenum. The death rate in this case is 20%.
- Penetration is a form of perforation in which the hole leads to and the ulcer continues into adjacent organs such as the liver and pancreas.
- Gastric outlet obstruction is a narrowing of the pyloric canal by scarring and swelling of the gastric antrum and duodenum due to peptic ulcers. The person often presents with severe vomiting.
- Cancer is included in the differential diagnosis (elucidated by biopsy), *Helicobacter pylori* as the etiological factor making it 3 to 6 times more likely to develop stomach cancer from the ulcer.

Cause

H. pylori

Helicobacter pylori is one of the major causative factors of peptic ulcer disease. It secretes urease to create an alkaline environment, which is suitable for its survival. It expresses blood group antigen adhesin (BabA) and outer inflammatory protein adhesin (OipA), which enables it to attach to the gastric epithelium. The bacterium also expresses virulence factors such

as *CagA* and *PicB*, which cause stomach mucosal inflammation. The VacA gene encodes for vacuolating cytotoxin, but its mechanism of causing peptic ulcers is unclear. Such stomach mucosal inflammation can be associated with hyperchlorhydria (increased stomach acid secretion) or hypochlorhydria (reduced stomach acid secretion). Inflammatory cytokines inhibit the parietal cell acid secretion. *H. pylori* also secretes certain products that inhibit hydrogen potassium ATPase; activate calcitonin gene-related peptide sensory neurons, which increases somatostatin secretion to inhibit acid production by parietal cells; and inhibit gastrin secretion. This reduction in acid production causes gastric ulcers. On the other hand, increased acid production at the pyloric antrum is associated with duodenal ulcers in 10% to 15% of *H. pylori* infection cases. In this case, somatostatin production is reduced and gastrin production is increased, leading to increased histamine secretion from the enterochromaffin cells, thus increasing acid production. An acidic environment at the antrum causes metaplasia of the duodenal cells, causing duodenal ulcers.

Human immune response toward the bacteria also determines the emergence of peptic ulcer disease. The human IL1B gene encodes for Interleukin 1 beta, and other genes that encode for tumour necrosis factor (TNF) and Lymphotoxin alpha also play a role in gastric inflammation.

NSAIDs

Taking nonsteroidal anti-inflammatory drugs (NSAIDs) and aspirin can increase the risk of peptic ulcer disease by four times compared to non-users. The risk of getting peptic ulcer is two times for aspirin users. Risk of bleeding increases if NSAIDs are combined with selective serotonin reuptake inhibitor (SSRI), corticosteroids, antimineralocorticoids, and anticoagulants. The gastric mucosa protects itself from gastric acid with a layer of mucus, the secretion of which is stimulated by certain prostaglandins. NSAIDs block the function of cyclooxygenase 1 (*COX-1*), which is essential for the production of these prostaglandins. Besides this, NSAIDs also inhibit stomach mucosa cells proliferation and mucosal blood flow, reducing bicarbonate and mucus secretion, which reduces the integrity of the mucosa. Another type of NSAIDs, called COX-2 selective anti-inflammatory drugs (such as celecoxib), preferentially inhibit *COX-2*, which is less essential in the gastric mucosa. This reduces the probability of getting peptic ulcers; however, it can still delay ulcer healing for those who already have a peptic ulcer.

Stress

Stress due to serious health problems, such as those requiring treatment in an intensive care unit, is well described as a cause of peptic ulcers, which are also known as stress ulcers.

While chronic life stress was once believed to be the main cause of ulcers, this is no longer the case. It is, however, still occasionally believed to play a role. This may be due to the well-documented effects of stress on gastric

physiology, increasing the risk in those with other causes, such as *H. pylori* or NSAID use.

Diet

Dietary factors, such as spice consumption, were hypothesized to cause ulcers until the late 20th century, but have been shown to be of relatively minor importance. Caffeine and coffee, also commonly thought to cause or exacerbate ulcers, appear to have little effect. Similarly, while studies have found that alcohol consumption increases risk when associated with *H. pylori* infection, it does not seem to independently increase risk. Even when coupled with *H. pylori* infection, the increase is modest in comparison to the primary risk factor.

Other

Other causes of peptic ulcer disease include gastric ischaemia, drugs, metabolic disturbances, cytomegalovirus (CMV), upper abdominal radiotherapy, Crohn's disease, andvasculitis. Gastrinomas (Zollinger–Ellison syndrome), or rare gastrin-secreting tumors, also cause multiple and difficult-to-heal ulcers. It is still unclear if smoking increases the risk of getting peptic ulcers.

Diagnosis

The diagnosis is mainly established based on the characteristic symptoms. Stomach pain is usually the first signal of a peptic ulcer. In some cases, doctors may treat ulcers without diagnosing them with specific tests and observe whether the symptoms resolve, thus indicating that their primary diagnosis was accurate.

More specifically, peptic ulcers erode the muscularis mucosae, at minimum reaching to the level of the submucosa (contrast with erosions, which do not involve the muscularis mucosae).

Confirmation of the diagnosis is made with the help of tests such as endoscopies or barium contrast x-rays. The tests are typically ordered if the symptoms do not resolve after a few weeks of treatment, or when they first appear in a person who is over age 45 or who has other symptoms such as weight loss, because stomach cancer can cause similar symptoms. Also, when severe ulcers resist treatment, particularly if a person has several ulcers or the ulcers are in unusual places, a doctor may suspect an underlying condition that causes the stomach to overproduce acid.

An esophagogastroduodenoscopy (EGD), a form of endoscopy, also known as a gastroscopy, is carried out on people in whom a peptic ulcer is suspected. It is also the gold standard of diagnosis for peptic ulcer disease. By direct visual identification, the location and severity of an ulcer can be described. Moreover, if no ulcer is present, EGD can often provide an alternative diagnosis.

One of the reasons that blood tests are not reliable for accurate peptic ulcer diagnosis on their own is their inability to differentiate between past exposure

to the bacteria and current infection. Additionally, a false negative result is possible with a blood test if the person has recently been taking certain drugs, such as antibiotics or proton-pump inhibitors.

The diagnosis of Helicobacter pylori can be made by:

- Urea breath test (noninvasive and does not require EGD);
- Direct culture from an EGD biopsy specimen; this is difficult and can be expensive. Most labs are not set up to perform *H. pylori* cultures;
- Direct detection of urease activity in a biopsy specimen by rapid urease test;
- Measurement of antibody levels in the blood (does not require EGD). It is still somewhat controversial whether a positive antibody without EGD is enough to warrant eradication therapy;
- Stool antigen test;
- Histological examination and staining of an EGD biopsy.

The breath test uses radioactive carbon to detect H. pylori. To perform this exam, the person is asked to drink a tasteless liquid that contains the carbon as part of the substance that the bacteria breaks down. After an hour, the person is asked to blow into a sealed bag. If the person is infected with *H. pylori*, the breath sample will contain radioactive carbon dioxide. This test provides the advantage of being able to monitor the response to treatment used to kill the bacteria.

The possibility of other causes of ulcers, notably malignancy (gastric cancer), needs to be kept in mind. This is especially true in ulcers of the *greater (large) curvature* of thestomach; most are also a consequence of chronic *H. pylori* infection.

If a peptic ulcer perforates, air will leak from inside the gastrointestinal tract (which always contains some air) to the peritoneal cavity (which normally never contains air). This leads to "free gas" within the peritoneal cavity. If the person stands ®, as when having a chest X-ray, the gas will float to a position underneath the diaphragm. Therefore, gas in the peritoneal cavity, shown on an erect chest X-ray or supine lateral abdominal X-ray, is an omen of perforated peptic ulcer disease.

Classification

1.Esophagus
2.Stomach
3.Ulcers
4.Duodenum
5.Mucosa
6.Submucosa
7. Muscle

Peptic ulcers are a form of acid–peptic disorder. Peptic ulcers can be classified according to their location and other factors.

By location

- Duodenum (called duodenal ulcer)
- Esophagus (called esophageal ulcer)
- Stomach (called gastric ulcer)
- Meckel's diverticulum (called Meckel's diverticulum ulcer; is very tender with palpation)

Macroscopic appearance

Gastric ulcers are most often localized on the lesser curvature of the stomach. The ulcer is a round to oval parietal defect ("hole"), 2–4 cm diameter, with a smooth base and perpendicular borders. These borders are not elevated or irregular in the acute form of peptic ulcer, and regular but with elevated borders and inflammatory surrounding in the chronic form. In the ulcerative form of gastric cancer, the borders are irregular. Surrounding mucosa may present radial folds, as a consequence of the parietal scarring.

Microscopic appearance

A gastric peptic ulcer is a mucosal perforation that penetrates the muscularis mucosae and lamina propria, usually produced by acid-pepsin aggression. Ulcer margins are perpendicular and present chronic gastritis. During the active phase, the base of the ulcer shows 4 zones: fibrinoid necrosis, inflammatory exudate, granulation tissue and fibrous tissue. The fibrous base of the ulcer may contain vessels with thickened wall or with thrombosis.

Differential diagnosis

Conditions that may appear similar include:

- Gastritis
- Stomach cancer
- Gastroesophageal reflux disease
- Pancreatitis
- Hepatic congestion
- Cholecystitis
- Biliary colic
- Inferior myocardial infarction
- Referred pain (pleurisy, pericarditis)
- Superior mesenteric artery syndrome

Prevention

Prevention of peptic ulcer disease for those who are taking NSAIDs (with low cardiovascular risk) can be achieved by adding aproton pump inhibitor (PPI), an H2 antagonist, or misoprostol. NSAIDs of the COX-2 inhibitors type may reduce the rate of ulcers when compared to non-selective NSAIDs.[14]PPI is the most popular agent in peptic ulcer prevention. However, there is no evidence that H2 antagonists can prevent stomach bleeding for those taking NSAIDs. Although misoprostol is effective in preventing peptic ulcer, its properties of promoting abortion and causing gastrointestinal distress limit its

use. For those with high cardiovascular risk, naproxen with PPI can be a useful choice. Otherwise, low-dose aspirin, celecoxib, and PPI can also be used.

Management

Eradication therapy

Once the diagnosis of *H. pylori* is confirmed, the first-line treatment would be a triple regimen in which pantoprazole and clarithromycin are combined with either amoxicillin or metronidazole. This treatment regimen can be given for 7–14 days. However, its effectiveness in eradicating *H. pylori* has been reducing from 90% to 70%. However, the rate of eradication can be increased by doubling the dosage of pantoprazole or increasing the duration of treatment to 14 days. Quadruple therapy (pantoprazole, clarithromycin, amoxicillin, and metronidazole) can also be used. The quadruple therapy can achieve an eradication rate of 90%. If the clarithromycin resistance rate is higher than 15% in an area, the usage of clarithromycin should be abandoned. Instead, bismuth-containing quadruple therapy can be used (pantoprazole, bismuth citrate, tetracycline, and metronidazole) for 14 days. The bismuth therapy can also achieve an eradication rate of 90% and can be used as second-line therapy when the first-line triple-regimen therapy failed.

NSAIDs induced ulcers

NSAID-associated ulcers heal in 6 to 8 weeks provided the NSAIDs are withdrawn with the introduction of proton pump inhibitors (PPI).

Bleeding[

For those with bleeding peptic ulcers, fluid replacement with crystalloids should be given to maintain volume in the blood vessels. Hameoglobin should be maintained at greater than 7 g/dL (70 g/L) through restrictive blood transfusion because it has been associated with reduced rate of death. Glasgow-Blatchford score is useful in determining whether a person should be treated inside a hospital or as an outpatient. Intravenous PPIs can suppress stomach bleeding more quickly than oral ones. A neutral stomach pH is required to keep platelets in place and prevent clot lysis. Tranexamic acid and antifibrinolytic agents are not useful in treating peptic ulcer disease.

Early endoscopic therapy can help to stop bleeding by using cautery, endoclip, or epinephrine injection. Treatment is indicated if there is active bleeding in the stomach, visible vessels, or an adherent clot. Endoscopy is also helpful in identifying people who are suitable for hospital discharge. Prokinetic agents such as erythromycin and metoclopramidecan be given before endoscopy to improve endoscopic view. Either high- or low-dose PPIs are equally effective in reducing bleeding after endoscopy. High-dose intravenous PPI is defined as a bolus dose of 80 mg followed by an infusion of 8 mg per hour for 72 hours—in other words, the continuous infusion of PPI of greater than 192 mg per day. Intravenous PPI can be changed to oral once there is no high risk of rebleeding from peptic ulcer.

For those with hypovolemic shock and ulcer size of greater than 2 cm, there is a high chance that the endoscopic treatment would fail. Therefore, surgery and angiographic embolism are reserved for these complicated cases. However, there is a higher rate of complication for those who underwent surgery to patch the stomach bleeding site when compared to repeated endoscopy. Angiographic embolisation has a higher rebleeding rate but a similar rate of death to surgery.

13.8 DIABETES

Diabetes is a disease that occurs when your blood glucose, also called blood sugar, is too high. Blood glucose is your main source of energy and comes from the food you eat. Insulin, ahormone made by the pancreas, helps glucose from food get into your cells to be used for energy. Sometimes your body doesn't make enough—or any—insulin or doesn't use insulin well. Glucose then stays in your blood and doesn't reach your cells.

Over time, having too much glucose in your blood can cause health problems. Although diabetes has no cure, you can take steps to manage your diabetes and stay healthy.

Sometimes people call diabetes "a touch of sugar" or "borderline diabetes." These terms suggest that someone doesn't really have diabetes or has a less serious case, but every case of diabetes is serious. Diabetes affects just about everyone, from the over 110 million Americans with or at risk for the disease to the many more people who care for them.

Meaning

Diabetes mellitus, commonly known as diabetes, is a metabolic disease that causes high blood sugar. The hormone insulin moves sugar from the blood into your cells to be stored or used for energy. With diabetes, your body either doesn't make enough insulin or can't effectively use the insulin it does make.

Different types of diabetes

Type 1 diabetes

If you have type 1 diabetes, your body does not make insulin. Your immune system attacks and destroys the cells in your pancreas that make insulin. Type 1 diabetes is usually diagnosed in children and young adults, although it can appear at any age. People with type 1 diabetes need to take insulin every day to stay alive.

Type 2 diabetes

If you have type 2 diabetes, your body does not make or use insulin well. You can develop type 2 diabetes at any age, even during childhood. However, this type of diabetes occurs most often in middle-aged and older people. Type 2 is the most common type of diabetes.

Gestational diabetes

Gestational diabetes develops in some women when they are pregnant. Most of the time, this type of diabetes goes away after the baby is born. However, if you've had gestational diabetes, you have a greater chance of developing type 2 diabetes later in life. Sometimes diabetes diagnosed during pregnancy is actually type 2 diabetes.

Other types of diabetes

Less common types include monogenic diabetes, which is an inherited form of diabetes, andcystic fibrosis-related diabetes

What health problems can people with diabetes develop?

Over time, high blood glucose leads to problems such as

- heart disease
- stroke
- kidney disease
- eye problems
- dental disease
- nerve damage
- foot problems

You can take steps to lower your chances of developing these diabetes-related health problems.

13.9 MENSTRUAL DISORDERS

A **menstrual disorder** is an abnormal condition in a woman's menstrual cycle.Some women get through their monthly periods easily with few or no concerns. Their periods come like clockwork, starting and stopping at nearly the same time every month, causing little more than a minor inconvenience.However, other women experience a host of physical and/or emotional symptoms just before and during menstruation. From heavy bleeding and missed periods to unmanageable mood swings, these symptoms may disrupt a woman's life in major ways.Most menstrual cycle problems have straightforward explanations, and a range of treatment options exist to relieve

your symptoms. If your periods feel overwhelming, discuss your symptoms with your health care professional. Once your symptoms are accurately diagnosed, he or she can help you choose the best treatment to make your menstrual cycle tolerable.

How the Menstrual Cycle Works

Your menstrual period is part of your menstrual cycle—a series of changes that occur to parts of your body (your ovaries, uterus, vagina and breasts) every 28 days, on average. Some normal menstrual cycles are a bit longer; some are shorter. The first day of your menstrual period is day one of your menstrual cycle. The average menstrual period lasts about five to seven days. A "normal" menstrual period for you may be different from what's "normal" for someone else.

Types of Menstrual Disorders

If one or more of the symptoms you experience before or during your period causes a problem, you may have a menstrual cycle "disorder." These include:

- **abnormal uterine bleeding (AUB),** which may include heavy menstrual bleeding, no menstrual bleeding (amenorrhea) or bleeding between periods (irregular menstrual bleeding)
- **dysmenorrhea** (painful menstrual periods)
- **premenstrual syndrome (PMS)**
- **premenstrual dysphonic disorder (PMDD)**

A brief discussion of menstrual disorders follows below.

Heavy menstrual bleeding

One in five women bleed so heavily during their periods that they have to put their normal lives on hold just to deal with the heavy blood flow.Bleeding is considered heavy if it interferes with normal activities. Blood loss during a normal menstrual period is about 5 tablespoons, but if you have heavy menstrual bleeding, you may bleed as much as 10 to 25 times that amount each month. You may have to change a tampon or pad every hour, for example, instead of three or four times a day.Heavy menstrual bleeding can be common at various stages of your life—during your teen years when you first begin to menstruate and in your late 40s or early 50s, as you get closer to menopause.

If you are past menopause and experience any vaginal bleeding, discuss your symptoms with your health care professional right away. *Any* vaginal bleeding after menopause isn't normal and should be evaluated immediately by a health care professional.

Heavy menstrual bleeding can be caused by:

- hormonal imbalances
- structural abnormalities in the uterus, such as polyps or fibroids
- medical conditions

Many women with heavy menstrual bleeding can blame their condition on hormones. Your body may produce too much or not enough estrogen or progesterone—known as reproductive hormones—necessary to keep your menstrual cycle regular.

For example, many women with heavy menstrual bleeding don't ovulate regularly. Ovulation, when one of the ovaries releases an egg, occurs around day 14 in a normal menstrual cycle. Changes in hormone levels help trigger ovulation.

Certain medical conditions can cause heavy menstrual bleeding. These include:

- thyroid problems
- blood clotting disorders such as Von Willebrand's disease, a mild-to-moderate bleeding disorder
- idiopathic thrombocytopenic purpura (ITP), a bleeding disorder characterized by too few platelets in the blood
- liver or kidney disease
- leukemia
- medications, such as anticoagulant drugs such as Plavix (clopidogrel) or heparin and some synthetic hormones.

Other gynecologic conditions that may be responsible for heavy bleeding include:

- complications from an IUD
- fibroids
- miscarriage
- ectopic pregnancy, which occurs when a fertilized egg begins to grow outside your uterus, typically in your fallopian tubes

Other causes of excessive bleeding include:

- infections
- precancerous conditions of the uterine lining cells

Amenorrhea

You may also have experienced the opposite problem of heavy menstrual bleeding—no menstrual periods at all. This condition, called amenorrhea, or the absence of menstruation, is normal before puberty, after menopause and during pregnancy. If you don't have a monthly period and don't fit into one of these categories, then you need to discuss your condition with your health care professional.

There are two kinds of amenorrhea: primary and secondary.

- **Primary amenorrhea** is diagnosed if you turn 16 and haven't menstruated. It's usually caused by some problem in your endocrine system, which regulates your hormones. Sometimes this results from low body weight associated with eating disorders, excessive exercise or medications. This medical condition can be caused by a number of other things, such as a problem with your ovaries or an area of your brain called the hypothalamus or genetic abnormalities. Delayed maturing of your pituitary gland is the most common reason, but you should be checked for any other possible reasons.

- **Secondary amenorrheais** diagnosed if you had regular periods, but they suddenly stop for three months or longer. It can be caused by problems that affect estrogen levels, including stress, weight loss, exercise or illness.

Additionally, problems affecting the pituitary gland (such as elevated levels of the hormone prolactin) or thyroid (including hyperthyroidism or hypothyroidism) may cause secondary amenorrhea. This condition can also occur if you've had an ovarian cyst or had your ovaries surgically removed.

Severe menstrual cramps (dysmenorrhea)
Most women have experienced menstrual cramps before or during their period at some point in their lives. For some, it's part of the regular monthly routine. But if your cramps are especially painful and persistent, this is called dysmenorrhea, and you should consult your health care professional.

Pain from menstrual cramps is caused by uterine contractions, triggered by prostaglandins, hormone-like substances that are produced by the uterine lining cells and circulate in your bloodstream. If you have severe menstrual pain, you might also find you have some diarrhea or an occasional feeling of faintness where you suddenly become pale and sweaty. That's because prostaglandins speed up contractions in your intestines, resulting in diarrhea, and lower your blood pressure by relaxing blood vessels, leading to lightheadedness.

Premenstrual syndrome (PMS)
PMS is a term commonly used to describe a wide variety of physical and psychological symptoms associated with the menstrual cycle. About 30 to 40 percent of women experience symptoms severe enough to disrupt their lifestyles. PMS symptoms are more severe and disruptive than the typical mild premenstrual symptoms that as many as 75 percent of all women experience.

There are more than 150 documented symptoms of PMS, the most common of which is depression. Symptoms typically develop about five to seven days before your period and disappear once your period begins or soon after.

Physical symptoms associated with PMS include:

- bloating
- swollen, painful breasts
- fatigue
- constipation
- headaches
- clumsiness

Emotional symptoms associated with PMS include:

- anger
- anxiety or confusion
- mood swings and tension
- crying and depression
- inability to concentrate

PMS appears to be caused by rising and falling levels of the hormones estrogen and progesterone, which may influence brain chemicals, including serotonin, a substance that has a strong affect on mood. It's not clear why some women develop PMS or PMDD and others do not, but researchers suspect that some women are more sensitive than others to changes in hormone levels.

PMS differs from other menstrual cycle symptoms because symptoms:

- tend to increase in severity as the cycle progresses
- are relieved when menstrual flow begins or shortly after
- are present for at least three consecutive menstrual cycles

Symptoms of PMS may increase in severity following each pregnancy and may worsen with age until they stop at menopause. If you experience PMS, you may have an increased sensitivity to alcohol at specific times during your cycle. Women with this condition often have a sister or mother who also suffers from PMS, suggesting a genetic component exists for the disorder.

Premenstrual Dysphoric Disorder (PMDD)

Premenstrual dysphoric disorder is far more severe than the typical PMS. Women who experience PMDD (about 3 to 8 percent of all women) say it significantly interferes with their lives. Experts equate the difference between PMS and PMDD to the difference between a mild tension headache and a migraine.

The most common symptoms of PMDD are heightened irritability, anxiety and mood swings. Women who have a history of major depression, postpartum depression or mood disorders are at higher risk for PMDD than other women. Although some symptoms of PMDD and major depression overlap, they are different:

- PMDD-related symptoms (both emotional and physical) are cyclical. When a woman starts her period, the symptoms subside within a few days.

- Depression-related symptoms, however, are not associated with the menstrual cycle. Without treatment, depressive mood disorders can persist for weeks, months or years. If depression persists, you should consider seeking help from a trained therapist.

Diagnosis

To help diagnose menstrual disorders, you should schedule an appointment with your health care professional. To prepare, keep a record of the frequency and duration of your periods. Also jot down any additional symptoms, such as cramping, and be prepared to discuss health history. Here is how your health care professional will help you specifically diagnose abnormal uterine bleeding, dysmenorrhea, PMS and PMDD:

Heavy menstrual bleeding

To diagnose heavy menstrual bleeding—also called menorrhagia—your health care professional will conduct a full medical examination to see if your condition is related to an underlying medical problem. This could be structural, such as fibroids, or hormonal. The examination involves a series of tests. These may include:

- **Ultrasound**. High-frequency sound waves are reflected off pelvic structures to provide an image. Your uterus may be filled with a saline solution to perform this procedure, called a sonohysterography. No anesthesia is necessary.
- **Endometrial biopsy**. A scraping method is used to remove some tissue from the lining of your uterus. The tissue is analyzed under a microscope to identify any possible problem, including cancer.
- **Hysteroscopy**. In this diagnostic procedure, your health care professional looks into your uterine cavity through a miniature telescope-like instrument called a hysteroscope. Local, or sometimes general, anesthesia is used, and the procedure can be performed in the hospital or in a doctor's office.
- **Dilation and curettage (D&C)**. During a D&C, your cervix is dilated and instruments are used to scrape away your uterine lining. A D&C may also be used as a treatment for excessive bleeding and for bleeding that doesn't respond to other treatments. It is performed on an outpatient basis under local anesthesia.

You can also expect blood tests to check your blood count for anemia and a urine test to see if you're pregnant, as well as other laboratory tests.

The more information you can give your health care professional, the better. Take notes on the dates and length of your periods. You can do this by marking your calendar or appointment book. You might also be asked to keep a daily track record of your temperature to determine when you are ovulating. Ovulation kits, that use a morning urine sample, are available without a prescription and are easy to use.

During your initial evaluation with your health care professional, you should also discuss the following:

- current medications
- details about menstrual flow and cycle length
- any gynecologic surgery or gynecologic disorders
- sexual activity and history of sexually transmitted diseases
- contraceptive use and history
- family history of fibroids or other conditions associated with AUB
- history of a breast discharge
- blood clotting disorders—either your own or in family members.

PMS and PMDD

There are no specific diagnostic tests for PMS and PMDD. You'll probably be asked to keep track of your symptoms and write them down. A premenstrual symptom checklist is one of the most common methods currently used to evaluate symptoms. With this tool, you can track the type and severity of symptoms to help identify a pattern.

Generally PMS and PMDD symptoms:

- tend to increase in severity as the menstrual cycle progresses.
- tend to be relieved when menstrual flow begins or soon afterward.

are present for at least three consecutive menstrual cycles

13.10 TERMINOLOGIES

1.Asthmatics 2. Allergy 3. Eczema 4. Peptic Ulcer 5. Diabetes

13.11 MODEL QUESTIONS

1. Explain the Congenital heart defect?
2. Discuss the function of asthmatics?
3. Bring out the prevention of allergy?
4. Discuss the principles of eczema?
5. Discuss the menstrual disorder?

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UNIT-XIV PSYCHONEUROIMMUNOLOGY

Structure

14.1 INTRODUCTION

The immune system is a host defense system comprising many biological structures and processes within an organism that protects against disease. To function properly, an immune system must detect a wide variety of agents, known as pathogens, from viruses toparasitic worms, and distinguish them from the organism's own healthy tissue. In many species, there are two major subsystems of the immune system: the innate immune system and the adaptive immune system. Both subsystems use humoral immunity and cell-mediated immunity to perform their functions. In humans, the blood–brain barrier, blood–cerebrospinal fluid barrier, and similar fluid–brain barriers separate the peripheral immune system from the neuroimmune system, which protects the brain.

Pathogens can rapidly evolve and adapt, and thereby avoid detection and neutralization by the immune system; however, multiple defense mechanisms have also evolved to recognize and neutralize pathogens. Even simple unicellular organisms such as bacteriapossess a rudimentary immune system in the form of enzymes that protect against bacteriophage infections. Other basic immune mechanisms evolved in ancient eukaryotes and remain in their modern descendants, such as plants and invertebrates. These mechanisms include phagocytosis, antimicrobial peptides called defensins, and the complement system. Jawed vertebrates, including humans, have even more sophisticated defense mechanisms, including the ability to adapt over time to recognize specific pathogens more efficiently. Adaptive (or acquired) immunity creates immunological memory after an initial response to a specific

pathogen, leading to an enhanced response to subsequent encounters with that same pathogen. This process of acquired immunity is the basis of vaccination.

Disorders of the immune system can result in autoimmune diseases, inflammatory diseases and cancer. Immunodeficiency occurs when the immune system is less active than normal, resulting in recurring and life-threatening infections. In humans, immunodeficiency can either be the result of a genetic diseasesuch as severe combined immunodeficiency, acquired conditions such as HIV/AIDS, or the use of immunosuppressive medication. In contrast, autoimmunity results from a hyperactive immune system attacking normal tissues as if they were foreign organisms. Common autoimmune diseases include Hashimoto's thyroiditis, rheumatoid arthritis,diabetes mellitus type 1, and systemic lupus erythematosus. Immunology covers the study of all aspects of the immune system.

Meaning

The immune system is a complex network of cells and proteins that defends the body against infection. The immune system keeps a record of every germ (microbe) it has ever defeated so it can recognise and destroy the microbe quickly if it enters the body again.

Layered defense

The immune system protects its host from infection with layered defenses of increasing specificity. In simple terms, physical barriers prevent pathogens such as bacteria andviruses from entering the organism. If a pathogen breaches these barriers, the innate immune system provides an immediate, but non-specific response. Innate immune systems are found in all plants and animals. If pathogens successfully evade the innate response, vertebrates possess a second layer of protection, the adaptive immune system, which is activated by the innate response. Here, the immune system adapts its response during an infection to improve its recognition of the pathogen. This improved response is then retained after the pathogen has been eliminated, in the form of an immunological memory, and allows the adaptive immune system to mount faster and stronger attacks each time this pathogen is encountered.

14.2 INNATE IMMUNE SYSTEM

Microorganisms or toxins that successfully enter an organism encounter the cells and mechanisms of the innate immune system. The innate response is usually triggered when microbes are identified by pattern recognition receptors, which recognize components that are conserved among broad groups of microorganisms, or when damaged, injured or stressed cells send out alarm signals, many of which (but not all) are recognized by the same receptors as those that recognize pathogens. Innate immune defenses are non-specific, meaning these systems respond to pathogens in a generic way. This system does not confer long-lasting immunity against a pathogen. The innate immune system is the dominant system of host defense in most organisms.

Pattern recognition by cells

Cells in the innate immune system use pattern recognition receptors (PRRs) to recognize molecular structures that are produced by microbial pathogens. PRRs are germline-encoded host sensors, which detect molecules typical for the pathogens. They are proteins expressed, mainly, by cells of the innate immune system, such as dendritic cells, macrophages, monocytes, neutrophils and epithelial cells, to identify two classes of molecules: pathogen-associated molecular patterns (PAMPs), which are associated with microbial pathogens, and damage-associated molecular patterns (DAMPs), which are associated with components of host's cells that are released during cell damage or death.

Innate lymphoid cells

Innate lymphoid cells (ILCs) are a group of innate immune cells that are derived from common lymphoid progenitor (CLP) and belong to the lymphoid lineage. These cells are defined by absence of antigen specific B or T cell receptor because of the lack of recombination activating gene (RAG). ILCs do not express myeloid or dendritic cell markers.

Natural killer cells, one of member ILCs, are lymphocytes and a component of the innate immune system which does not directly attack invading microbes. Rather, NK cells destroy compromised host cells, such as tumor cells or virus-infected cells, recognizing such cells by a condition known as "missing self." This term describes cells with low levels of a cell-surface marker called MHC I (major histocompatibility complex)—a situation that can arise in viral infections of host cells. They were named "natural killer" because of the initial notion that they do not require activation in order to kill cells that are "missing self." For many years it was unclear how NK cells recognize tumor cells and infected cells. It is now known that the MHC makeup on the surface of those cells is altered and the NK cells become activated through recognition of "missing self". Normal body cells are not recognized and attacked by NK cells because they express intact self MHC antigens. Those MHC antigens are recognized by killer cell immunoglobulin receptors (KIR) which essentially put the brakes on NK cells.

Inflammation

Inflammation is one of the first responses of the immune system to infection. The symptoms of inflammation are redness, swelling, heat, and pain, which are caused by increased blood flow into tissue. Inflammation is produced by eicosanoids and cytokines, which are released by injured or infected cells. Eicosanoids include prostaglandins that produce fever and the dilation of blood vessels associated with inflammation, and leukotrienes that attract certain white blood cells (leukocytes). Common cytokines includeinterleukins that are responsible for communication between white blood cells; chemokines that promote chemotaxis; and interferons that have anti-viral effects, such as shutting down protein synthesis in the host cell. Growth factors and cytotoxic factors may also be released. These cytokines and other chemicals recruit immune cells to the site of infection and promote healing of any damaged tissue following the removal of pathogens.

The humoral immune response

A B cell identifies pathogens when antibodies on its surface bind to a specific foreign antigen. This antigen/antibody complex is taken up by the B cell and processed by proteolysis into peptides. The B cell then displays these antigenic peptides on its surface MHC class II molecules. This combination of MHC and antigen attracts a matching helper T cell, which releases lymphokines and activates the B cell. As the activated B cell then begins to divide, its offspring (plasma cells) secrete millions of copies of the antibody that recognizes this antigen. These antibodies circulate in blood plasma and lymph, bind to pathogens expressing the antigen and mark them for destruction bycomplement activation or for uptake and destruction by phagocytes. Antibodies can also neutralize challenges directly, by binding to bacterial toxins or by interfering with the receptors that viruses and bacteria use to infect cells.

14.3 EVOLUTION OF THE IMMUNE SYSTEM

It is likely that a multicomponent, adaptive immune system arose with the first vertebrates, as invertebrates do not generate lymphocytes or an antibody-based humoral response. Many species, however, utilize mechanisms that appear to be precursors of these aspects of vertebrate immunity. Immune systems appear even in the structurally most simple forms of life, with bacteria using a unique defense mechanism, called the restriction modification system to protect themselves from viral pathogens, calledbacteriophages. Prokaryotes also possess acquired immunity, through a system that uses CRISPR sequences to retain fragments of the genomes of phage that they have come into contact with in the past, which allows them to block virus replication through a form of RNA interference. Prokaryotes also possess other defense mechanisms. Offensive elements of the immune systems are also present in unicellular eukaryotes, but studies of their roles in defense are few.

Pattern recognition receptors are proteins used by nearly all organisms to identify molecules associated with pathogens. Antimicrobial peptides called defensins are an evolutionarily conserved component of the innate immune response found in all animals and plants, and represent the main form of invertebrate systemic immunity. Thecomplement system and phagocytic cells are also used by most forms of invertebrate life. Ribonucleases and the RNA interference pathway are conserved across all eukaryotes, and are thought to play a role in the immune response to viruses.

Unlike animals, plants lack phagocytic cells, but many plant immune responses involve systemic chemical signals that are sent through a plant. Individual plant cells respond to molecules associated with pathogens known as Pathogen-associated molecular patterns or PAMPs. When a part of a plant becomes infected, the plant produces a localizedhypersensitive response, whereby cells at the site of infection undergo rapid apoptosis to prevent the spread of the disease to other parts of the plant. Systemic acquired resistance (SAR) is a type of defensive response used by plants that renders

the entire plant resistant to a particular infectious agent. RNA silencing mechanisms are particularly important in this systemic response as they can block virus replication.

Alternative adaptive immune system

Evolution of the adaptive immune system occurred in an ancestor of the jawed vertebrates. Many of the classical molecules of the adaptive immune system (e.g., immunoglobulinsand T-cell receptors) exist only in jawed vertebrates. However, a distinct lymphocyte-derived molecule has been discovered in primitive jawless vertebrates, such as the lampreyand hagfish. These animals possess a large array of molecules called Variable lymphocyte receptors (VLRs) that, like the antigen receptors of jawed vertebrates, are produced from only a small number (one or two) of genes. These molecules are believed to bind pathogenic antigens in a similar way to antibodies, and with the same degree of specificity.

14.4 IMMUNOCOMPROMISE

Immunodeficiency or immunocompromise is a state in which the immune system's ability to fight infectious disease and cancer is compromised or entirely absent. Most cases of immunodeficiency are acquired ("secondary") due to extrinsic factors that affect the patient's immune system. Examples of these extrinsic factors include HIV infection and environmental factors, such as nutrition. In the clinical setting, the immunosuppression by some drugs, such as steroids, can be either an adverse effect or the intended purpose of the treatment. Examples of such use is in organ transplant surgery as an anti-rejection measure and in patients suffering from an overactive immune system, as in autoimmune diseases. Some people are born with intrinsic defects in their immune system, or primary immunodeficiency. A person who has an immunodeficiency of any kind is said to be immunocompromised. An immunocompromised person may be particularly vulnerable to opportunistic infections, in addition to normal infections that could affect everyone. Immunodeficiency also decreases cancer immunosurveillance, in which the immune system scans the body's cells and kills neoplastic ones.

Meaning

Immunocompetence is the ability of the body to produce a normal immune response following exposure to an antigen. Immunocompetence is the opposite of immunodeficiencyor immuno-incompetent or immuno-compromised. Examples include:

- a newborn who does not yet have a fully functioning immune system but may have maternally transmitted antibodies – immunodeficient;
- a late stage AIDS patient with a failed or failing immune system – immuno-incompetent; or
- a transplant recipient taking medication so their body will not reject the donated organ – immunocompromised.

There may be cases of overlap but these terms all describe immune system not fully functioning.

The US Centers for Disease Control and Prevention (CDC) recommends that household and other close contacts of persons with altered immunocompetence receive the MMR,varicella, and rotavirus vaccines according to the standard schedule of vaccines, as well as receiving an annual flu shot. All other vaccines may be administered to contacts without alteration to the vaccine schedule, with the exception of the smallpox vaccine. Persons with altered immunocompetence should not receive live, attenuated vaccines (viral or bacterial), and may not receive the full benefit of inactivated vaccines.

14.5 TYPES

By affected component

- Humoral immune deficiency (including B cell deficiency or dysfunction), with signs or symptoms depending on the cause, but generally include signs of hypogammaglobulinemia(decrease of one or more types of antibodies) with presentations including repeated mild respiratory infections, and/or agammaglobulinemia (lack of all or most antibody production) which results in frequent severe infections and is often fatal.
- T cell deficiency, often causes secondary disorders such as acquired immune deficiency syndrome (AIDS).
- Granulocyte deficiency, including decreased numbers of granulocytes (called as granulocytopenia or, if absent, agranulocytosis) such as of neutrophil granulocytes (termedneutropenia). Granulocyte deficiencies also include decreased function of individual granulocytes, such as in chronic granulomatous disease.
- Asplenia, where there is no function of the spleen
- Complement deficiency is where the function of the complement system is deficient

In reality, immunodeficiency often affects multiple components, with notable examples including severe combined immunodeficiency (which is primary) and acquired immune deficiency syndrome (which is secondary).

Comparison of immunodeficiencies by affected component

	Affected components	Main causes	Main pathogens of resultant infections
Humoral immune deficiency B cell deficiency	B cells, plasma cells orantibo dies	• Primary humoral • Multiple myeloma • Chronic lymphoid leukemia • AIDS	• Streptococcus pneumoniae • Hemophilus influenzae • Pneumocystis jirovecii • Giardia intestinalis • Cryptosporidium

			parvum
T cell deficiency	T cells	• Marrow and other transplantation • AIDS • Cancer chemotherapy • Lymphoma • Glucocorticoid therapy	Intracellular pathogens, including Herpes simplex virus, Mycobacterium, Listeria, and intracellular fungal infections.
Neutropenia	Neutrophil granulocytes	• Chemotherapy • Bone marrow transplantation • Dysfunction, such as chronic granulomatous disease	• Enterobacteriaceae • Oral Streptococci • Pseudomonas aeruginosa • Enterococcus species • Candida species • Aspergillus species
Asplenia	Spleen	• Splenectomy • Trauma • Sickle-cell anemia	• Polysaccharide encapsulated bacteria, particularly: o Streptococcus pneumoniae o Haemophilus influenzae o Neisseria meningitidis • Plasmodium species • Babesia species
Complement deficiency	Complement system	• Congenital deficiencies	• Neisseria species • Streptococcus pneumoniae

14.6 PRIMARY OR SECONDARY

Distinction between primary versus secondary immunodeficiencies are based on, respectively, whether the cause originates in the immune system itself or is, in turn, due to insufficiency of a supporting component of it or an external decreasing factor of it.

Primary immunodeficiency

A number of rare diseases feature a heightened susceptibility to infections from childhood onward. Primary Immunodeficiency is also known as congenital immunodeficiencies. Many of these disorders are hereditary and are autosomal recessive or X-linked. There are over 95 recognised primary immunodeficiency syndromes; they are generally grouped by the part of the immune system that is malfunctioning, such as lymphocytes or granulocytes.

The treatment of primary immunodeficiencies depends on the nature of the defect, and may involve antibody infusions, long-term antibiotics and (in some cases) stem cell transplantation. The characteristics of lacking and/or impaired antibody functions can be related to illnesses such as X-Linked Agammaglobulinemia and Common Variable Immune Deficiency

Secondary immunodeficiencies

Secondary immunodeficiencies, also known as acquired immunodeficiencies, can result from various immunosuppressive agents, for example, malnutrition, aging, particular medications (e.g., chemotherapy, disease-modifying antirheumatic drugs, immunosuppressive drugs after organ transplants, glucocorticoids) and environmental toxins likemercury and other heavy metals, pesticides and petrochemicals like styrene, dichlorobenzene, xylene, and ethylphenol. For medications, the term immunosuppression generally refers to both beneficial and potential adverse effects of decreasing the function of the immune system, while the term immunodeficiency generally refers solely to the adverse effect of increased risk for infection.

Many specific diseases directly or indirectly cause immunosuppression. This includes many types of cancer, particularly those of the bone marrow and blood cells (leukemia,lymphoma, multiple myeloma), and certain chronic infections. Immunodeficiency is also the hallmark of acquired immunodeficiency syndrome (AIDS), caused by the human immunodeficiency virus (HIV). HIV directly infects a small number of T helper cells, and also impairs other immune system responses indirectly.

Various hormonal and metabolic disorders can also result in immune deficiency including anemia, hypothyroidism and hyperglycemia.Smoking, alcoholism and drug abuse also depress immune response.

Causes

The cause of immunodeficiency varies depending on the nature of the disorder. The cause can be either genetic or acquired by malnutrition and poor sanitary conditions. Only for some genetic causes, the exact genes are known.

Treatment

Available treatment falls into two modalities: treating infections and boosting the immune system.Prevention of Pneumocystis pneumonia using trimethoprim/sulfamethoxazole is useful in those who are immunocompromised. In the early 1950s Immunoglobulin(Ig) was used by doctors to treat patients with primary immunodeficiency through intramuscular injection. Ig replacement therapy are infusions that can be either subcutaneous or intravenously administrated, resulting in higher Ig levels for about three to four weeks, although this varies with each patient.

Prognosis

Prognosis depends greatly on the nature and severity of the condition. Some deficiencies cause early mortality (before age one), others with or even without treatment are lifelong conditions that cause little mortality or

morbidity. Newer stem cell transplant technologies may lead to gene based treatments of debilitating and fatal genetic immune deficiencies. Prognosis of acquired immune deficiencies depends on avoiding or treating the causative agent or condition (like AIDS).

14.7 COPING RESOURCES AS MODERATORS OF THE STRESS

stress

Stress is the body's reaction to any change that requires an adjustment or response. The body reacts to these changes with physical, mental, and emotional responses. Stress is a normal part of life. You can experience stress from your environment, your body, and your thoughts. Even positive life changes such as a promotion, a mortgage, or the birth of a child produce stress.

How does stress affect health?

The human body is designed to experience stress and react to it. Stress can be positive, keeping us alert, motivated, and ready to avoid danger. Stress becomes negative when a person faces continuous challenges without relief or relaxation between stressors. As a result, the person becomes overworked, and stress-related tension builds. The body's autonomic nervous system has a built-in stress response that causes physiological changes to allow the body to combat stressful situations. This stress response, also known as the "fight or flight response", is activated in case of an emergency. However, this response can become chronically activated during prolonged periods of stress. Prolonged activation of the stress response causes wear and tear on the body – both physical and emotional.

Stress that continues without relief can lead to a condition called distress – a negative stress reaction. Distress can disturb the body's internal balance or equilibrium, leading to physical symptoms such as headaches, an upset stomach,elevated blood pressure, chest pain, sexual dysfunction, and problems sleeping. Emotional problems can also result from distress. These problems includedepression, panic attacks, or other forms of anxiety and worry. Research suggests that stress also can bring on or worsen certain symptoms or diseases. Stress is linked to 6 of the leading causes of death: heart disease, cancer, lung ailments, accidents, cirrhosis of the liver, and suicide.

Stress also becomes harmful when people engage in the compulsive use of substances or behaviors to try to relieve their stress. These substances or behaviors include food, alcohol, tobacco, drugs, gambling, sex, shopping, and the Internet. Rather than relieving the stress and returning the body to a relaxed state, these substances and compulsive behaviors tend to keep the body in a stressed state and cause more problems. The distressed person becomes trapped in a vicious circle.

What are the warning signs of stress?

Chronic stress can wear down the body's natural defenses, leading to a variety of physical symptoms, including the following:

- Dizziness or a general feeling of "being out of it."
- General aches and pains.
- Grinding teeth, clenched jaw.
- Headaches.
- Indigestion or acid reflux symptoms.
- Increase in or loss of appetite.
- Muscle tension in neck, face or shoulders.
- Problems sleeping.
- Racing heart.
- Cold and sweaty palms.
- Tiredness, exhaustion.
- Trembling/shaking.
- Weight gain or loss.
- Upset stomach, diarrhea.
- Sexual difficulties.

14.8 COPING WITH STRESS

There are two parts to coping. One is being able to tolerate stress: to function reasonably well in stressful situations and get through them. The second part is recovering: getting back to normal when the stressful situation is over.

Good coping skills prevent stress from getting us down and help us thrive, even in challenging times.How people cope

Here are the most common coping techniques identified in the American Psychological Association’s 2014 *Stress in America* survey:

- listening to music
- physical activity
- reading
- meditation
- praying, going to church
- yoga
- getting a massage

All of these strategies were rated as effective by more than half the people who used them.

Some coping strategies are not so great

But people have other ways of coping that aren’t quite as effective. For example, lots of people use screen time – watching TV or movies and surfing the net – to distract themselves from stress. But in the *Stress in*

America survey, relatively few people said screen time was truly effective as a stress management strategy.

Some coping strategies give people temporary relief, but can cause other problems. For example, people may feel relief from stress after eating junk food or having a few drinks. But both can cause health problems if they become habits.

That doesn't mean you should never watch TV or eat the occasional bag of chips to distract yourself from stress. Almost everybody does things like that sometimes. But it's a good idea to learn about other coping strategies that may be more helpful.

Here are some proven coping methods that are both effective and low-risk. Some of them are "first aid" – strategies that help us manage stress in the moment. Others are "stress maintenance" – strategies that build our ability to deal with stress or help us recover from it.

Stress First Aid

Take a break

There's an old saying, "A break is as good as a rest." When it comes to stress, a break actually is a rest. Taking a break to do something that gets your mind off of stress – reading, having coffee with a friend, or going for a walk – gives your stress response system a much-needed rest. That refreshes you physically and mentally, which can help you break a pattern of "stressing about your stress."

Relaxation breathing

For centuries, people who practiced yoga and Buddhism have used breathing to relax and think more clearly. They were right. Research shows that slow, deep breathing – exhaling slowly is particularly important – lowers the heart rate and blood pressure, and has other effects that help people to feel calmer and more focused. Relaxation breathing is easy to learn and can be can be done almost anywhere.

Humour

Everybody loves to laugh. But laughter is actually a stress fighter. It helps us release tension, gets our minds off of our troubles and it also causes physiological changes in the body that are similar to the changes we experience when we exercise.

Reaching out

Getting support from other people is one of the most important ways we have of coping with stress. In fact, humans are wired to receive and give social support. Social support sometimes has a physiological impact that makes us feel better right away. Think of how quickly a crying baby often calms down

when his mom or dad picks him up and holds him close. Our need for support from others continues throughout life.

Physical activity

Physical activity is one of the best things you can do for your health and it has been shown to improve people's physiological response to stress. Physical activity causes the release of brain chemicals that make you feel good ,so it can help you recover your sense of well-being after a stressful experience.

14.9 STRESS MAINTENANCE

Learning to think differently about a stressor we can't change

When we're dealing with stress, the way we think can either help or hinder us. Negative thinking patterns can add to our stress by making an already stressful situation seem worse than it really is. Therefore changing the way we think about a stressor can make it easier to cope.

Changing the way you think about a stressor involves learning:

- to accept and adapt to stress you can't change
- to recognize and "turn off" negative or catastrophic thinking that can increase feelings of stress
- to think about stressors in less negative and flexible ways

Changing your thinking patterns is by no means easy. But it's a skill that can be learned. Changing the way you think about a stressor is one of the our action strategies.

Yoga

Yoga combines physical activity, deep breathing, relaxation and meditation. So it's sort of a one-stop-shop for stress-busting. In the *Stress in America Survey,* people who practiced yoga said it was very helpful for dealing with stress. Most communities have yoga classes at various levels, including beginner.

A stress-friendly lifestyle

Everyone knows that if you don't take care of yourself ,you can get run down and become more vulnerable to illness. It's similar with stress. Taking care of yourself – getting enough sleep, eating well, being physically active, making time for activities that you enjoy, and avoiding the overuse of alcohol and or "recreational" drugs – will improve your ability to tolerate stress better and recover from stress.

Meditation

Meditation has been used throughout history to help people clear their minds of worries, cares and negative thoughts so they can focus on what is happening

right now. Modern research has confirmed that meditation can help people manage stress.

Tips for reducing stress

People can learn to manage stress and lead happier, healthier lives. You may want to begin with the following tips:

- Keep a positive attitude.
- Accept that there are events that you cannot control.
- Be assertive instead of aggressive. Assert your feelings, opinions, or beliefs instead of becoming angry, defensive, or passive.
- Learn and practice relaxation techniques; try meditation, yoga, or tai-chi.
- Exercise regularly. Your body can fight stress better when it is fit.
- Eat healthy, well-balanced meals.
- Learn to manage your time more effectively.
- Set limits appropriately and say no to requests that would create excessive stress in your life.
- Make time for hobbies and interests.
- Get enough rest and sleep. Your body needs time to recover from stressful events.
- Don't rely on alcohol, drugs, or compulsive behaviors to reduce stress.
- Seek out social support. Spend enough time with those you love.
- Seek treatment with a psychologist or other mental health professional trained instress management or biofeedback techniques to learn more healthy ways of dealing with the stress in your life.

14.10 PHYSIOLOGICAL REGULATION/IMMUNE FUNCTIONING RELATIONSHIP

- The immune system is involved in many aspects of physiological regulation in the body. The immune system interacts intimately with other systems, such as the endocrine and the nervous systems. The immune system also plays a crucial role in embryogenesis (development of the embryo), as well as in tissue repair andregeneration.

Hormones

- Hormones can act as immunomodulators, altering the sensitivity of the immune system. For example, female sex hormones are known immunostimulators of both adaptive and innate immune responses. Some autoimmune diseases such as lupus erythematosus strike women preferentially, and their onset often coincides with puberty. By contrast, male sex hormones such as testosterone seem to be immunosuppressive. Other hormones appear to regulate the immune system as well, most notably prolactin, growth hormone and vitamin D.

Vitamin D

- When a T-cell encounters a foreign pathogen, it extends a vitamin D receptor. This is essentially a signaling device that allows the T-cell to bind to the active form of vitamin D, the steroid hormone calcitriol. T-cells have a symbiotic relationship with vitamin D. Not only does the T-cell extend a vitamin D receptor, in essence asking to bind to the steroid hormone version of vitamin D, calcitriol, but the T-cell expresses the gene CYP27B1, which is the gene responsible for converting the pre-hormone version of vitamin D, calcidiolinto the steroid hormone version, calcitriol. Only after binding to calcitriol can T-cells perform their intended function. Other immune system cells that are known to expressCYP27B1 and thus activate vitamin D calcidiol, are dendritic cells, keratinocytes and macrophages.
- It is conjectured that a progressive decline in hormone levels with age is partially responsible for weakened immune responses in aging individuals. Conversely, some hormones are regulated by the immune system, notably thyroid hormone activity. The age-related decline in immune function is also related to decreasing vitamin D levels in the elderly. As people age, two things happen that negatively affect their vitamin D levels. First, they stay indoors more due to decreased activity levels. This means that they get less sun and therefore produce less cholecalciferol via UVB radiation. Second, as a person ages the skin becomes less adept at producing vitamin D

Sleep and rest

- The immune system is affected by sleep and rest, and sleep deprivation is detrimental to immune function. Complex feedback loops involving cytokines, such as interleukin-1and tumor necrosis factor-α produced in response to infection, appear to also play a role in the regulation of non-rapid eye movement (REM) sleep. Thus the immune response to infection may result in changes to the sleep cycle, including an increase in slow-wave sleep relative to REM sleep.
- When suffering from sleep deprivation, active immunizations may have a diminished effect and may result in lower antibody production, and a lower immune response, than would be noted in a well-rested individual. Additionally, proteins such as NFIL3, which have been shown to be closely intertwined with both T-cell differentiation and our circadian rhythms, can be affected through the disturbance of natural light and dark cycles through instances of sleep deprivation, shift work, etc. As a result, these disruptions can lead to an increase in chronic conditions such as heart disease, chronic pain, and asthma.
- In addition to the negative consequences of sleep deprivation, sleep and the intertwined circadian system have been shown to have strong regulatory effects on immunological functions affecting both the innate and the adaptive immunity. First, during the early slow-wave-sleep stage, a sudden drop in blood levels of cortisol, epinephrine,

andnorepinephrine induce increased blood levels of the hormones leptin, pituitary growth hormone, and prolactin. These signals induce a pro-inflammatory state through the production of the pro-inflammatory cytokines interleukin-1, interleukin-12, TNF-alpha and IFN-gamma. These cytokines then stimulate immune functions such as immune cells activation, proliferation, and differentiation. It is during this time that undifferentiated, or less differentiated, like naïve and central memory T cells, peak (i.e. during a time of a slowly evolving adaptive immune response). In addition to these effects, the milieu of hormones produced at this time (leptin, pituitary growth hormone, and prolactin) support the interactions between APCs and T-cells, a shift of the T_h1/T_h2 cytokine balance towards one that supports T_h1, an increase in overall T_h cell proliferation, and naïve T cell migration to lymph nodes. This milieu is also thought to support the formation of long-lasting immune memory through the initiation of Th1 immune responses.

- In contrast, during wake periods differentiated effector cells, such as cytotoxic natural killer cells and CTLs (cytotoxic T lymphocytes), peak in order to elicit an effective response against any intruding pathogens. As well during awake active times, anti-inflammatory molecules, such as cortisol and catecholamines, peak. There are two theories as to why the pro-inflammatory state is reserved for sleep time. First, inflammation would cause serious cognitive and physical impairments if it were to occur during wake times. Second, inflammation may occur during sleep times due to the presence of melatonin. Inflammation causes a great deal of oxidative stress and the presence of melatonin during sleep times could actively counteract free radical production during this time.
- **Nutrition and diet**
- Overnutrition is associated with diseases such as diabetes and obesity, which are known to affect immune function. More moderate malnutrition, as well as certain specific trace mineral and nutrient deficiencies, can also compromise the immune response.
- Foods rich in certain fatty acids may foster a healthy immune system. Likewise, fetal undernourishment can cause a lifelong impairment of the immune system.
- **Vaccination**
- Long-term active memory is acquired following infection by activation of B and T cells. Active immunity can also be generated artificially, through vaccination. The principle behind vaccination (also called immunization) is to introduce an antigen from a pathogen in order to stimulate the immune system and develop specific immunity against that particular pathogen without causing disease associated with that organism. This deliberate induction of an immune response is successful because it exploits the natural specificity of the

immune system, as well as its inducibility. With infectious disease remaining one of the leading causes of death in the human population, vaccination represents the most effective manipulation of the immune system mankind has developed.

- Most viral vaccines are based on live attenuated viruses, while many bacterial vaccines are based on acellular components of micro-organisms, including harmless toxincomponents. Since many antigens derived from acellular vaccines do not strongly induce the adaptive response, most bacterial vaccines are provided with additional adjuvantsthat activate the antigen-presenting cells of the innate immune system and maximize immunogenicity.

14.11TERMINOLOGIES

1. Immune system 2. Primary 3. Resource 4. Stress 5. Maintenance

14.12 MODEL QUESTIONS

1. Explain the Innate immune system?
2. Discuss the evolution of the immune system?
3. Bring out the types of immune system?
4. Discuss the coping with stress?
5. Discuss the Stress Maintenance?

14.13 REFERENCE BOOKS

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3. Brannon, J. & Feist, J. (1999). Health Psychology: An Introduction to Behavior and Health(4th ed,) Wadsworth Thomson Learning
4. Roberts, R., Towell, T. & Golding, J.F. (2001). Foundations of Health Psychology. Palgrave Houndmills, New York.
5. Taylor, E. (2006). Health Psychology. New Delthi: Mc Graw Hills Inc.

Alagappa University,
Distance Education
Model Questions
M.Sc Psychology
Health Psychology(363441)

Time:3 hours Max.Marks: 75

PART- A (10x2=20 marks)

Answer All the Questions

1.Define Health
2. What is Illness?
3. Define Health Literacy
4. What is Health Beliefs?
5. What is Blood Test?
6. Define Interpreting system?
7. What is Pain?
8. Define Yoga Asanas?
9. What is Health eating?
10. Define Immune system?

PART- B (5x5=25 marks)

Answer All the Questions

11) a.Explain the types of Health psychology? (or)

b. Discuss the Mind-body problem?

12) a. Bring out the Using and misusing health services? (or)

b. Explain the Locus of Control?

13) a. Discuss the Stress reactions? (or)

b. Explain the Quality of life?

14) a. Explain the Self-regulatory model? (or)

b. Discuss the Changing Health habits?

15) a. Explain the pain control techniques? (or)

b. Explain the Peptic Ulcer?

PART- C (3x10=30 marks)

Answer any FIVE Questions

16) Explain the Well-being and Quality of life?

17) Bring out the Health enhancing behaviours?

18) Discuss the Psychological reactions of a patient to loss?

19) List out the Principles in yoga practice?

20) Discuss the Coping resources as moderators of the stress?